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VOCATIONAL EDUCATION

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VOCATIONAL EDUCATION

SEPTEMBER, 1911

VOCATIONAL TRAINING AND ITS FUTURE.

EDMUND J. JAMES.

AMERICAN education has undergone a profound transformation within the last forty years. The American university has become an entirely different institution from what it was in 1870, or rather, perhaps it would be better to say that the university began to appear in American education for the first time during this period. We are sometimes inclined to point to the great changes and improvements in our transportation system, in our agriculture, in our engineering, in our financial system as wonderful evidences of American progress and as the best tests of real advance. But no change in any department of American life has been more fundamental, more far reaching, or more complete than the change in our educational system. The Harvard University of today is as different an institution from the Harvard University of 1870, and in many ways as great an improvement upon that institution, as the engine which draws the twentieth century express between New York and Chicago is different from, and an improvement upon, its counterpart of forty years ago.

It is true that there is probably today no better teacher in the whole staff of Harvard University than some of the teachers in that staff in 1870. It is true that in some departments the youngsters who were in college with us got as good a training as those who enter college today. But this covers, after all, only a small part of the work of the university. The subjects of study open to the young men of 1870, when compared with those offered them today,—the field within which the youth of the country might find the opportunity for intellectual improvement and for advance in technical skill and knowledge in the

universities was vastly more narrow and with every passing year it is widening under our very eyes. Harvard University has undergone perhaps a more complete revolution and change than any of the older historic institutions; but a similar change is to be found in all the newer institutions from Maine to California, and Washington to Florida. An entirely new atmosphere, an entirely new spirit and an entirely new outlook distinguish the institutions of today from those of forty years ago.

In the first place, the attendance has increased enormously and has outrun the increase in population. And there seems to be no tendency to decrease as yet. The number of young people in the country who are going to the universities to seek whatever preparation for their life work these universities may be able to afford is mounting to unprecedented figures. The amount of money spent upon our universities is increasing enormously. Single individuals give sums for purposes of higher education which exceed in value the sum total of the gifts made to even the greatest of our institutions in the previous decades or centuries of their existence.

INFLUENCE OF VOCATIONAL IDEALS ON UNIVERSITY DEVELOPMENT

I think I am not stating the case too broadly when I say that the great improvement and the great change in our system of higher education which marks it off today in such a clear way from what it was before 1870 may be traced directly and immediately to the increased emphasis laid upon vocational training. The universities have, to an increasing extent, become the centers for the education of men who go into not only the historic learned professions, but into the newer learned professions and into callings which we have not yet accustomed ourselves to look upon as learned professions. The great increase in attendance at our universities has come primarily into those departments which have to do directly or indirectly with vocational training; or into those departments which have given a vocational turn to the education which they were offering.

The Harvard University of the last twenty years has been laying special emphasis upon its law school, which has become by far the largest school in the country making similar requirements for admission and which is so different from the Harvard law school of 1870 as to be with difficulty properly included under the same head. It emphasizes its medical school to which the largest endowments have been of late

given. It is emphasizing its technical school, its graduate school in engineering, which has received what may possibly turn out to be, the greatest endowment for higher education ever set apart for one single department. It is emphasizing its graduate work, which is, of course, technical, special, professional work par excellence.

Even in the college with the enlarged borders and widened entrance and increasing numbers the proportion of the students who are following out, during at least half of their course and, for that matter, many of them during most of their course, studies which have a direct bearing as immediate and professional preparation for further special study, is increasing all the time.

This increased attendance at the universities in the vocational courses has come about not only because our universities have offered these facilities to our young people, but because the community is steadily emphasizing the necessity for such training on the part of people who wish to enter certain vocations,—this not merely as a matter of public sentiment but in many cases as a matter of positive law.

For example, it was not uncommon forty years ago for a man to study medicine in a doctor's office and if there were any state examination, pass such examination without ever attending a medical school. Today the law in most of the states of the Union requires that any person who wishes to secure a license to practice medicine shall have pursued a course of medical study in a recognized medical school and the clear recognition that, speaking generally, the better medical schools are departments of universities, the law is producing a steadily increasing pressure upon the candidates for the medical profession to attend the medical departments of recognized universities.

The same thing is true of dentistry.

While the law does not, I believe, in any state require that the student who wishes to secure a license to practice law shall have studied at a law school, or at a university, the custom of the people has become such that in the older and richer states of the Union, at any rate, no young man would think today of preparing for the examination for admission to the bar without taking some portion, or all, of his course in a law school and if possible in a university law school. The same thing is coming to be true even of such a calling as pharmacy.

The early engineers of this country were, many of them, trained in engineers' offices or picked up the art by work on their own account without ever going into any office, but no youngster would think today

of undertaking the practice of the profession of engineering without securing that particular element in his preparation which a school can best give. And so our engineering schools, and engineering courses, and engineering departments have been attended by an ever increasing throng of young men.

The same thing is true to a less extent of the profession of architecture. You will still find a great many architects who think that the best way for a boy to get a training which will prepare him to become an architect is to go into an architect's office. It is the same old idea that animated the so-called practical physician fifty years ago, or the practical dentist down to within a very short time, or the practical lawyer, that the way to learn the trade was to get at the business in an office,—or ride around with the doctor as he visited his patients or sweep out the office, and put up the books in a lawyer's office, etc., etc. But the number of architects who believe that if a young man wishes to practice the profession of architecture it will be worth his while to attend a school of architecture is increasing. And the sentiment of the community on the subject is becoming plainly indicated by the increasing attendance at these comparatively new schools, or new departments, of our universities.

A most striking illustration, perhaps, of the tendency of our young people to seek the facilities and opportunities for training which the universities may afford is to be found in the astonishing increase in the number of students in our agricultural colleges which has occurred during the last ten or fifteen years, indicating a radical revolution in public sentiment upon this important matter.

In a word, we may sum up the result of this development in every direction in our American life somewhat to this effect: That the victory of the well planned, well taught curriculum of the vocational school over the haphazard training of the office, the farm, the shop, is becoming ever more certain, and that especially in all those departments of life in which the success of the profession, as a whole and in a large way, is dependent upon the development of certain underlying fundamental sciences, by training in which the young man may get some help and assistance in preparation for his actual life work.

So complete has this change been wrought that the definition of a university, which is coming to command the acceptance of an increasing number of thoughtful men, describes the university as an institution which affords an adequate training for the learned professions and which

defines a learned profession to be any calling for the highest success in which a thoroly systematic training in the sciences underlying the development of that profession is of value to the men and women who wish to pursue it. In other words, a university in the proper sense of that term is a complex or group of vocational or professional schools.

The future clergyman, the future lawyer, the future physician, the future dentist, the future pharmacist, the future musician, the future farmers, the future engineer, the future architect are all looking forward to the university as the place where they may obtain a training which will be of advantage to them in their future callings.

THE DEMAND FOR BETTER TRAINED MEN.

The community has risen to the view that it may secure better service from its clergymen, its lawyers, its physicians, its engineers, its architects, its dentists, its pharmacists, its farmers, if it will provide, either thru the benefaction of private individuals or thru the taxing power of the state, institutions in which the young men who are going to pursue these professions may find the opportunities which will make them more efficient in their respective callings and train them to a larger and wider and more generous outlook, a training which will gradually bear in upon their consciousness that they are servants of the community and its interests in a high sense and not merely grubbers after a living.

It is worth the while of an individual lawyer to get the best training he can in order to get ahead of his neighbor in the various competitions of life. It is worth the while of the future physician to get such a training as will make his future patients undoubtedly believe that he is a better trained and more skillful man than his competitor. It is worth the while of the future engineer to get a training which will help him convince his client that he knows more about the subject than some other engineer. But it is to the interest of the community as a whole, to you and me, that the physician should have the highest possible training, that the lawyer should have a training which will not only sharpen his wits and increase his power of winning a suit but which will inspire him with fundamental ethical ideals and a sense of the sacredness of his relation to the trust which the community places in his hands.

The victory of the university then as the place for vocational professional training over any other center which has been thus far developed in human society is today perfectly apparent. And with every passing day the number of people who expect to find in the university

something of value to them is increasing and will undoubtedly continue to increase. Wherever there is a calling, efficiency in which can be increased by a careful scientific training in the sciences underlying that calling, we have a calling which will probably become a profession and which will find its natural place of preparation in the bosom of the university.

TRAINING FOR THE BUSINESS MAN.

So much for a general view of the subject. Now no one can face the educational situation in the United States today without feeling that while this principle before referred to has been now generally accepted in certain fields of training it has had little or no application in the great field of business commerce and industry. It has not been so very long since President Eliot—I say so very long, I mean in the life time of a nation—it was about thirty years ago when President Eliot said that there was nothing in business which could be taught to young men in a college or university. That the only thing to do was to train men in the underlying sciences, give them if possible a classical training, enable them to become masters of their own intellectual powers, help them to an outlook upon the world and then let them go into business in order to learn there the particular craft by which they expected to earn their livelihood.

He forgot that the craft by which a man earns his livelihood is also, generally speaking and usually speaking, the means by which he is doing whatever he can do to be of benefit to those of his age and generation. The lawyer is a benefit or a curse to his fellow men according as he is a worthy member of that profession from which he gets his livelihood possibly. This is certainly true of a physician. It is equally true of a banker or an insurance man. And because of this fundamental fact that a man's service to his day and generation lies chiefly in his service as a member of some calling or some profession does the question of his training for that calling or profession become of supreme importance,—not simply owing to its bearing upon his efficiency as a member of society, but owing to its effect on his moral attitude and moral outlook and moral standard as, in a certain sense, a moral force in his profession, in his community, in his nation.

I have felt, therefore, ever since I first became interested in this subject that the moral effects flowing from the education of the future business man in the university in the sense in which I have been using

that term would be good,—that the moral effects would redound to the advantage of society. I have believed that the interests of our great nation would be enormously served if the typical business man could secure a part of his training, a part of his professional training, of his technical training at the university just as the physician, or the lawyer, or the clergyman.

It is a far call from the time when I was first associated with this movement in the year 1883 to the present time; but within that period the face of education in this particular department has changed almost beyond recognition. The Wharton School of Finance and Economy was established in 1881 as an organic part of the University of Pennsylvania, with this object in view of developing as far as possible in the University a center of study to which young men who were expecting to enter business life would find it worth their while to resort.

The course was first organized in a concrete way in the autumn of 1883, when four or five of us youngsters were associated in the faculty for the purpose of working out this problem as far as we might be able.

Our resources were meager. The attitude of our colleagues in the University was one of undisguised hostility, partly because they seemed to see in this movement for the technical education of business men a movement against the old type of college instruction, altho none of us believed that to be the fact; partly, and more, because they did not believe that there was anything in the great realm of business, using that term in the largest sense, which was worth studying, or, if worth studying, could be so formulated as to principles as to make it worth the while to pursue such studies in a university. And over and against this obstacle we had also the feeling of the average business man that such work was all nonsense and that the place for a youngster to learn business was in his father's office. If he wished to study theology, or medicine, or law, the father would consider the question of sending him to the university. If he wished to follow a business career his father knew more about it than all the college professors combined could teach him.

It was a sharp contest but inside the first decade this movement had begun to attract attention. The American Bankers Association in 1891 asked me to give an address before their body upon the Wharton School, its work, its ideals, its objects. As a result of that address they asked me to visit Europe and make a study of the commercial or business schools of the different European countries and make a report

upon that subject. The committee of the American Bankers Association having charge of this investigation, some seventeen years ago, sent out a strong argument and a strong appeal to the various American colleges and universities calling their attention to the comparatively slight provision which had been made in our American university system for the professional education of the business man. The result of that agitation carried on for some four or five years was very marked. I do not know that we have had a more striking illustration of the effect of a definite propaganda by a set of business men in favor of some educational project than is indicated by the result of this agitation. Within a comparatively few years nearly every leading university in the United States has provided to the extent of its ability for instruction along lines in which men who expect to go into business life would be especially interested, and now even Harvard has swung into line with a department placed upon the same basis as law, medicine and engineering, as a strictly professional school, requiring for admission the same general preparation as for the other professional schools.

Of course, the field is so vast, the lines of business so numerous, the educational machinery so undeveloped that even the universities which are doing most in this line are very conscious that after all they are doing comparatively little. But they are, at any rate, all engaged in this undertaking, and colleges of commerce, schools of commerce, courses in commerce have been organized now in some twenty of the leading American universities.

PROGRESS IN OTHER COUNTRIES.

It is a very interesting fact indeed that side by side with this development in universities has come a similar development in Europe and that in Germany, in Cologne, in Frankfort, in Leipsic, in Berlin and in Hamburg higher schools of commerce have been organized which may properly be considered university schools of commerce. In England the new provincial universities are all recognizing the desirability of such movement and in the University of Birmingham a definite organization for higher commercial instruction has been created, and in the London School of Economics another university center has been created for the study of these subjects. And, finally, now in the latest report for the reorganization of the University of Oxford, coming out under the name and with the approval of Lord Curzon, chancellor of the University, a definite recommendation is made that facilities for

the study of subjects looking forward to preparation for active business life inside of the University and as an integral part of its work are demanded as one of the important elements of University reform.

The movement, then, is on foot and growing rapidly in all civilized countries. Business men can do an immense amount to stimulate and help this development, greatly to the benefit not only of the young fellows who are going into business, but above all, to the community, whose business will be better managed when entrusted to the care of properly trained men than when managed by those who have not such training.

WHILE THE PUBLIC SCHOOLS AND COLLEGES AIM ONLY AT TEACHING PROFESSIONS, THE GREATEST NEED OF AMERICA, EDUCATIONALLY, IS THE IMPROVEMENT OF INDUSTRIAL INTELLIGENCE AND WORKING EFFICIENCY IN THE AMERICAN YOUTH. WE NEED AN EDUCATIONAL UPLIFT FOR THE WORK OF THE BOY WHO WILL WORK WITH HIS HANDS, AND WE NOT ONLY NEED TO GIVE AN EDUCATIONAL UPLIFT TO CRAFTSMANSHIP, BUT THE SCHOOL NEEDS THE HELP OF THE WORKMAN AND HIS BETTER WORK IN EDUCATION. WE SHOULD REALIZE BETTER THE INTERDEPENDENCE BETWEEN OUR COMMON EDUCATION AND OUR COMMON INDUSTRIES. THIS CAN BE EFFECTUATED ONLY BY A SYSTEM OF INDUSTRIAL SCHOOLS, DIFFERENTIATED FROM THE MANUAL TRAINING SCHOOLS, WHICH SHALL ACTUALLY TRAIN WORKMEN FOR THE TRADES AND AT THE SAME TIME GIVE THEM A BROADER MENTAL CULTURE.

SAMUEL GOMPERS in the report given at the St. Louis Convention of the AMERICAN FEDERATION OF LABOR.

THE CLEVELAND ELEMENTARY INDUSTRIAL SCHOOL.

FRANK M. LEAVITT.

THE city of Cleveland has been a pioneer in things educational. It is not surprising, therefore, to find that, with her large number of manufacturing and commercial interests, she has taken a prominent part in the establishment of those school activities which, with differing shades of meaning and purpose, have been variously characterized as the manual and domestic arts, manual training or industrial education.

The Cleveland Manual Training High School was one of the first of its kind to be organized in the United States, and within a few years of its establishment the type of work given therein was extended downward into the elementary grades.

The more recent movement to "motivate" the work of the high schools met with early and adequate response by the establishment of the Technical High School and the High School of Commerce, the first of which was opened for the enrollment of pupils and the organization of classes on October 5, 1908, and the second just one year later.

The Elementary Industrial School, which was opened in September, 1909, and which it is the purpose of this article to describe, is intimately related to these earlier innovations in public education. The Technical High School was established with the purpose of providing an educational institution of strictly high school standards, employing, it is true, somewhat different methods and appealing to different interests, but open only to graduates of the elementary school.

The Technical High School has been extremely successful. The Report of the Committee on the Place of Industries in Public Education of the National Educational Association says: "The Technical High School of Cleveland seems to the Committee to approach most closely to the definition previously given for such a school. There are several 'technical high schools' in the country, but an examination of their courses of study will show that they do not differ radically from ordinary manual training high schools."

AN ELEMENTARY EXPERIMENT STATION.

Successful as the new school proved to be, it failed completely to influence the educational plans of the children who drop out of school at

the sixth or seventh grade. This confirmed the school authorities in their belief that an institution, employing somewhat similar methods but nearer to the critical point in the system, was an essential unit in the school plan. The Elementary Industrial School, which had been in contemplation for some months, was therefore established as an "experiment station."

The problem was frankly admitted to be one of general education rather than of industrial training, and the investigation undertaken was addressed to the specific task of improving the course of study for grades seven and eight especially with reference to those children who had not met with ordinary success under the methods of instruction commonly employed in the preceding grades.

Briefly outlined, the plan was as follows: (1) A course of study was to be developed parallel to the existing course for grades seven and eight which would *appear more attractive* to the children in question and which would actually *prove* to be *more helpful* to them whether they remained in school for a longer or a shorter period; (2) The school day was to be lengthened to six hours; (3) One half the time was to be devoted to handwork; (4) The time devoted to each of the book subjects in the regular elementary school was to be reduced by two-fifths and was to be related to possible vocational interests of the pupils, not only those illustrated by the hand-work of the school, but those possible of illustration by the prominent commercial and manufacturing activities of the community. That is to say, these manual and vocational realities were to be made the central features of the school and around these were to be grouped all the other school activities; (5) The fundamental features of these subjects were to be presented without too great elaboration which frequently, thru its very variety of illustration, proves to be most confusing to the young pupil.

The educational theories, advanced in support of this plan, laid especial emphasis on the necessity of appealing to the children's desire for motor activity and their interest in and dependence upon concrete actualities. In fact, on hearing an explanation of the relation existing between the hand-work and the book subjects in this school, the writer was strongly reminded of the ideals of the earlier advocates of manual training. It seemed as if here was an attempt to realize more fully, perhaps, happily, to realize completely, the aims of the pioneers of twenty-five years ago, which we are sometimes told, have not been realized because their promoters failed in the very practicality which they professed to



FIG. 1. SEWING ROOM.

believe was fundamental. The following quotation from an official report of the school, might well have been taken from some address before an educational body two decades since:

On the other hand, this school rests upon the recognition of the fact that very many of the failures of children in the work of the schools are due, not to lack of ability on the children's part, but to the failure to consider the needs of the hand-minded or practical-minded children on the part of the current systems in their one-sided attention to the language-minded and imaginative, in their reliance upon the imagery of words and abstractions, rather than upon the actualities of concrete life, both in learning and doing.

Elsewhere it has been observed that hand-minded children who had gained in their classes the reputation of dullards and who had themselves lost faith in their powers, were restored to confidence and learned to make satisfactory progress even in previously distasteful subjects, when opportunity came to them to exercise their powers in matters which appealed to their mental constitution and seemed to them worth while. If these children were to be afforded an opportunity to make the best of themselves, they must be approached from the side of the practical, they must learn by doing in order to do. Thus alone could they be led to the cultural, to the discovery of the inestimable value of knowledge, of science, of art, and even to the pursuit of these for their own sake. Thus, alone, could the school hope to place them in full possession of their human inheritance, to reach and to stir into the fullest self-active life every phase of their mental constitution.

PLAN OF ORGANIZATION.

With these plans and theories as guiding principles, the Elementary Industrial School was organized as follows: A ten-room building on Summer and East Thirteenth Streets, a locality fairly central, was selected in which to house this experiment. There are three recitation rooms, one study room, one cooking room, one sewing room, two woodworking rooms, one drawing room, and one small room which was set aside to be equipped on different occasions as a model living room, dining-room, bedroom, or sick room. This room is not yet equipped for the purposes for which it was intended, but the furniture and other fittings are being made by the pupils. Figs. 1, 2, and 3 show the rooms used for sewing, elementary woodworking, and advanced woodworking.

The management of the school is nominally in the hands of a director who acts as principal, but the influence of the supervisor of manual training is everywhere apparent in the organization of courses and in the spirit of liberal judgment which pervades the school. Contrary to the practice obtaining in most industrial schools, no special commercial or shop experience is demanded of the teachers in this school as a necessary qual-



FIG. 2. ELEMENTARY WOODWORK.

ification. The two requisites are that they must have been excellent teachers either in the grade work or in the domestic or manual arts, and that they must be entirely free from that bias which long experience in the traditional schools frequently gives. The teachers finally chosen are well described as scientific as to subject matter and inspirational as to methods of instruction.

While a single center was selected in which to make the experiment, it was intended to have the enterprise of common interest to the whole city. Therefore each principal was given the opportunity of sending from one to four boys or girls to this school. The selection of these children was made after consultation, and invariably with the consent of the parents. Only retarded children were desired. To be eligible for admission to the school, the boy or girl must have been in the sixth grade for at least a year, must be thirteen years of age or over, and at least two years behind grade, the grade being determined on the supposition that the child would begin school at the age of six and progress one grade each year. Furthermore the principals were requested to send only such children as, in their opinion, would otherwise withdraw from school altogether.

In the light of the method of selection, it is interesting to examine the characteristics of the children who attended this school the first term. There were one hundred and forty-three children, of whom approximately two-thirds were boys. In age they varied from twelve to seventeen years, with an average of fourteen and two-tenths; and in grades they ranged from the fifth to the seventh, indicating a departure from the original plan; but the children of the fifth grade were very rare exceptions.

The school brought together a group of children who had been rather unsuccessful in the regular school work, who had lost interest, and who had especially lost confidence in themselves. In some cases the boys and girls had been difficult to control, to say the least. They were said to be poor writers, poor spellers, poor in their grasp of the processes and applications of arithmetic. In short, they were distinctly of the "anti-book" type.

THE COURSE OF STUDY.

The courses of study employed may best be considered under two heads, the constructive or hand-work, and the book or study work, tho the supervisor of manual training says that "the important feature of the course of study is the close correlation and unity of all the subjects."

The hand-work comprises practice in working drawing, freehand

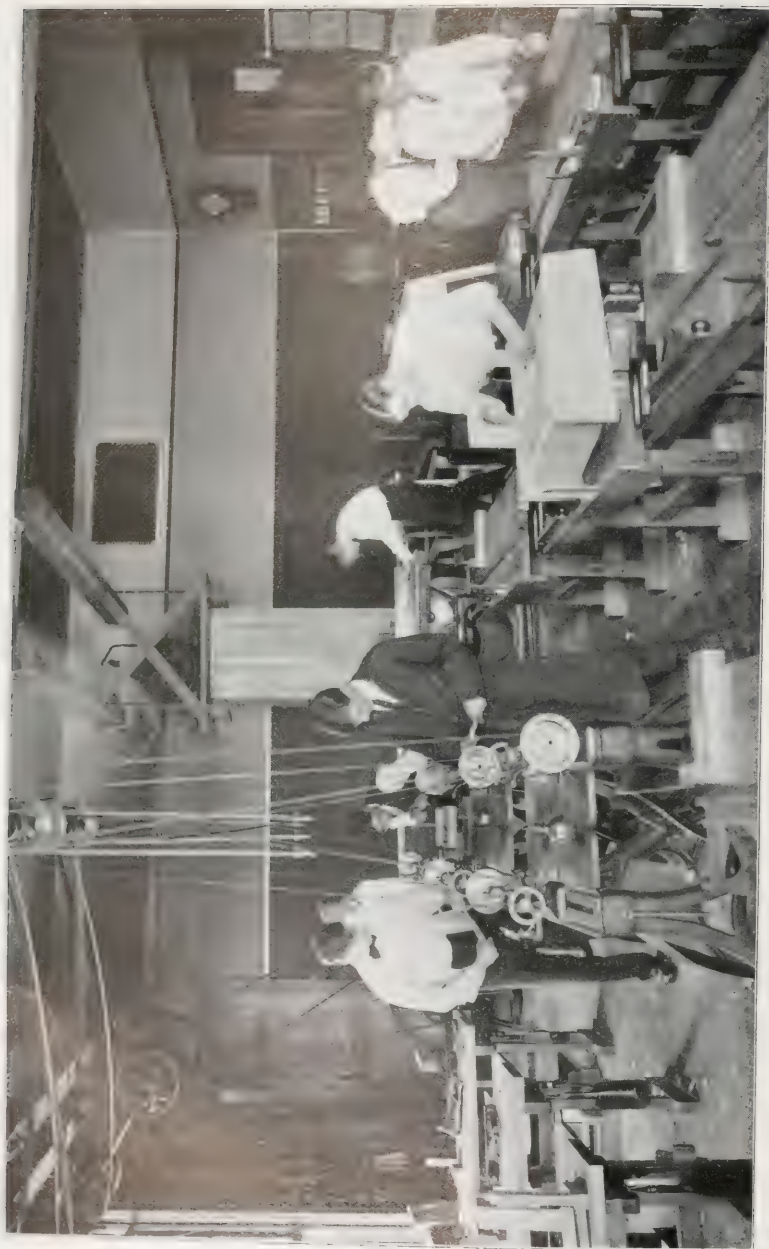


FIG. 3. CABINET-MAKING, WOOD-TURNING, AND PATTERN-MAKING.

drawing and applied design, woodworking, cooking, sewing, and a little printing. These serve to call attention to certain vocations, as mechanical or architectural drawing, carpentry, cabinet-making, pattern-making, printing, domestic and laundry work, nursing, and dressmaking. That the hand-work is considered to be of great importance is evidenced by the fact that approximately one-half of the time is devoted to it. This makes it possible to carry the work much farther than in the grade school. The work for the girls goes more thoroly into household science and art, and includes the purchase and preparation of foods, the service of meals, laundry work, the care of the sick, the furnishing, adornment, and care of the home, and the making of garments. The boys work for a time on general courses, but are allowed to specialize on either mechanical drawing, wood-turning, pattern-making, cabinet-making, carpentry, or printing, during the major part of the second year. A part of the product of this work becomes the property of the pupils, in which case they pay for the material used; and the remainder of it, consisting of project and group work for the school, remains in the school.

There is little in the equipment of the school kitchen, the sewing, woodworking, and drawing rooms, or in the work done therein, to distinguish the school from an exceptionally well equipped, well organized, and thoroly modern elementary school. The chief difference is in the liberal allotment of time which makes a corresponding difference in the amount of work done, and, to some extent, in its nature. This latter, however, is not marked, but it should be recalled that this is absolutely consistent with the expressed purpose of the school, and indicates a confidence on the part of its promoters in the efficacy of manual training as a factor in general education.

In the book work, some radical departures are made from the course of study for the grade schools, tho it is maintained by the teachers and the superintendent of schools that the fundamentals of each subject in the curriculum are given. This, furthermore, is done in less time, a total of only about fifteen hours a week. The subjects are classed as follows:

English, which includes reading, writing, and spelling, practical composition and story writing.

Arithmetic, the four fundamental processes, percentage (one case), decimals and fractions, all related as closely as possible to the hand-work or illustrated by the keeping of school or of personal accounts.

Geography-history, which is taught as one subject and springs from the consideration of commercial and industrial phenomena.



FIG. 4. GEOGRAPHY-HISTORY ROOM.

Perhaps the most distinctively characteristic work of the school is the geography-history. It is believed that to put the child in intimate touch with his immediate environment is the very best way to interest him in the study of more distant places and people. Therefore, the location, climate, topography, and soil of Cleveland are studied and described. These in turn explain the manufacturing, commerce, and history of Cleveland, which are studied in the most practical way possible. The children are taken on excursions to manufacturing plants, to the flour mills and the large distributing concerns. The railroads and other means of transportation are discussed, and this leads to an understanding of the life and work of the people of Cleveland, their varying interests, and their connection with other parts of the country and with other days. Visits to the grain, cattle, lumber, or steel centers carry the children far afield, to be brought back by their work in the school kitchen and shops. The teaching of this subject appears to be especially efficient, and the classroom has the appearance of a museum of industrial products. The exhibits, as may be seen in Fig. 4, are neither large nor numerous, but are fairly representative of local industrial interests, and the children are helped by them, as well as by the instruction, to a comprehension of some of the industrial possibilities which the future may hold in store for them.

WHAT IS BEING ACCOMPLISHED.

It is rather difficult to speak of the "results" of any educational experiment, because of the variety of influences which may have affected them. This is peculiarly true when the data is drawn from a comparatively small number of cases, and covers so short a period as that during which the Elementary Industrial School has been in existence. However, judgment and opinion are better guides than blind prejudice, and since some prejudice still exists against anything industrial in the domain of elementary education, the writer will venture to state what, in his opinion, the two years seem to show.

The pupils came to the school from different parts of the city, some of them having to ride in the street cars from six to seven miles, others walking three or four miles to and from school. It was stated by the children that many of them had taken out work and school certificates before coming to the Industrial School, and yet, at the end of the second year, out of the original one hundred and forty-three, fifty-two still remained, thirty-three boys and nineteen girls, and of these forty-nine graduated.

The figures show that many of the children left school, as was to have been expected, but constant additions were made, and the total membership at the end of the second year was one hundred and forty-six, distributed as follows: first-year class, fifty-six boys and twenty-seven girls; second-year class, forty-two boys and twenty-one girls. The first graduating class numbered fifty-three, and of these nineteen expected to enter the Technical High School and one a regular academic high school. The figures show conclusively that this school has exerted a strong influence in retaining children who would otherwise have become early and probably unskilled workers.

Another result of the school seems to be an awakening of real interest on the part of the children, and especially the development of a considerable self-respect and confidence, a confidence which appears to be deserved. They have been given things to do which they could do well, and this has had the effect of making them more self-reliant in all their work. They are able to learn some things without being taught, which is an extremely valuable asset for these children who are likely to become wage earners at an early age. As an illustration of this, the work in printing may be mentioned. In one corner of the drawing room is a small equipment for printing, costing, perhaps, one hundred dollars, and this some of the boys have been permitted to use. They are self-instructed, having drawn from the public library such books as they needed to help them in making a beginning. There is no teacher of printing in the school, yet the boys have made considerable progress.

Not the least valuable of these results is the changed attitude of the children toward schools and school life in general. They have enjoyed their school, and have used it not alone for work but for social pleasures. Several plays, for example, have been well given, with scenery made by pupils. Few of them regard it desirable to leave school, while statistics show the extreme eagerness with which children of this type usually sever, permanently, their connection with the grade school. It seems fair to assume, that, even tho these children must go to work in the near future, they will all the more readily and naturally turn to such other educational institutions as may be open to them, as evening or continuation schools. There is thus a hope that they may become permanent students so far as study becomes at once necessary, available, and appropriate.

Quite apart from the benefit of this school to its pupils, is its value, as an experiment, to the cause of education in general. The value of an

experiment is apparent in proportion to the fidelity with which it adheres to its avowed purpose. Judged from that standpoint, the writer feels that the Elementary Industrial School has proved to be extremely useful, and predicts that its lessons, should the school be continued or multiplied, will be studied with interest and profit by students in elementary education thruout the country.

The school *has* remained constant to its stated principles as we have seen, and it is not criticism of either the principles or the practices of the school to note that it differs materially from other elementary industrial schools which have been established in several cities within the past five years. In fact, the peculiar value of this experiment can best be shown by contrasting it with others. In most of these schools especial emphasis is placed on the *industrial nature of the hand-work*. A practical and commercial product is desired, and all the conditions of the production and frequently of its disposition, are made to conform as closely as possible to those actually encountered in the industrial world.

It was apparently partially in protest against such practices that the Cleveland experiment was undertaken. In an editorial in the *MANUAL TRAINING MAGAZINE* for April, 1910, William E. Roberts, the supervisor of manual training, said: "It is the trade school, the continuation school, the elementary industrial school with a purely utilitarian purpose, that are being considered and suggested, rather than the preparation of material which they must use, the product of the established elementary schools. The danger lies in dealing with industrial education as apart from and added to the school system, instead of making it an integral part of that system by reorganization."

Quite consistent with this thought, the hand-work of the Cleveland Elementary Industrial School is made a central but a cultural factor, while industry, not being the primary end sought, is utilized in both the hand-work and the book or study work, but especially in the latter, as a vitalizing principle.

THE ILLINOIS STATE REFORMATORY SCHOOL OF SHEET METAL WORK.

JAMES S. DAUGHERTY.

THE law establishing the Illinois State Reformatory went into effect on the first day of July, 1891. This Reformatory is but the natural sequence of the late Reform School. Its location is the same, its purposes are similar, and but for the changes made in the laws of the state substituting the indeterminate sentence for the definite sentence, and authorizing parole, the late Reform School and present Reformatory, are not unlike in aim or character, but the changes made necessary an entirely different system of management. The problems confronting the authorities of the institution from that time forward have been of no ordinary character. For the information of the reader, it is deemed proper to give a brief description of the methods pursued. When an inmate is received he is carefully examined by the superintendent and the physician. The former examines him closely as to his birth, parentage, social relations, occupation, education, moral tendencies and mental capacity, endeavoring to find out what causes have led him to his present condition, and to estimate what treatment will bring him out of it. The physician examines him as to his physical condition. He is turned over to the superintendent of schools, who assigns him to the elementary schools, according to his ability. Next he is examined by the assistant superintendent, who interrogates him relative to his previous employment. From such information as he can gather, he assigns him, after consulting with the superintendent, to one of the different trade schools. He is placed in the second or neutral grade and it is carefully explained to him that by earning each month three marks for good conduct, three for labor, and three for study, he makes a perfect record. Six months of perfect record will result in his promotion to first grade, and six months of similar record in first grade will secure him an audience with the board of managers, and examination by them as to his fitness for parole. If the inmate has shown such improvement as will warrant the managers in believing that he will not abuse the temporary liberty afforded by parole, it is ordered by vote of the board, to take effect as soon as employment is secured for him with a reputable person at some legitimate industry. The employer's character must be cer-

tified to the board by a judge, or some other reputable person in his county who is known to the managers. The inmate, while on parole, is required to make written reports to the general superintendent each month. If he violates the conditions of his parole, he is returned to the Reformatory and there must commence to work out anew the problem which he has failed to solve,—the problem of the proper use of liberty regulated by law.

The work of the common schools is based upon the state course of study. Each inmate not having reached the eighth grade, upon admission to the institution is required to attend school half a day. In addition to a common school education we are required to teach the inmates a trade. To do this and do the best work in the common schools and trade schools, one-half of the boys attend the common schools in the forenoon and the other half in the afternoon, and the same is true of the trade schools. This does not mean the ordinary school day, but a full working day, from seven to five. A large percent of inmates, when received, not only lack a knowledge of a trade, but have never known what it means to be a factor in any work. Not only must a trade be suggested and taught him, but an inspiration aroused for honest sustenance. As stated above, we follow the state course of study. The peculiarities of our field make some additional work not only necessary but desirable. A very large majority of the inmates come to us at a point below the fifth grade. The work which the course provides for these lower grades, having been prepared with a view to the needs of children, is not sufficient to occupy the time of the young men that compose those grades here. I have endeavored to show by the above brief history, that the average inmate, when received, has a meagre preparation for this work.

Sheet metal trade instruction has been conducted here for a number of years in connection with the regular sheet metalwork of the institution. We are situated in a building that was constructed for trade school purposes. Our work room has a floor space fifty by fifty feet, exhibit and classroom thirty by forty feet. The rooms are well lighted, and heated thruout by steam.

EQUIPMENT.

Each pupil is supplied with a drawing board, tee-square, triangles, curves, and a set of instruments, also a set of small tools, consisting of a tinner's mallet, riveting hammer, straight and curved shears or snips,



SHEET METAL SHOP.

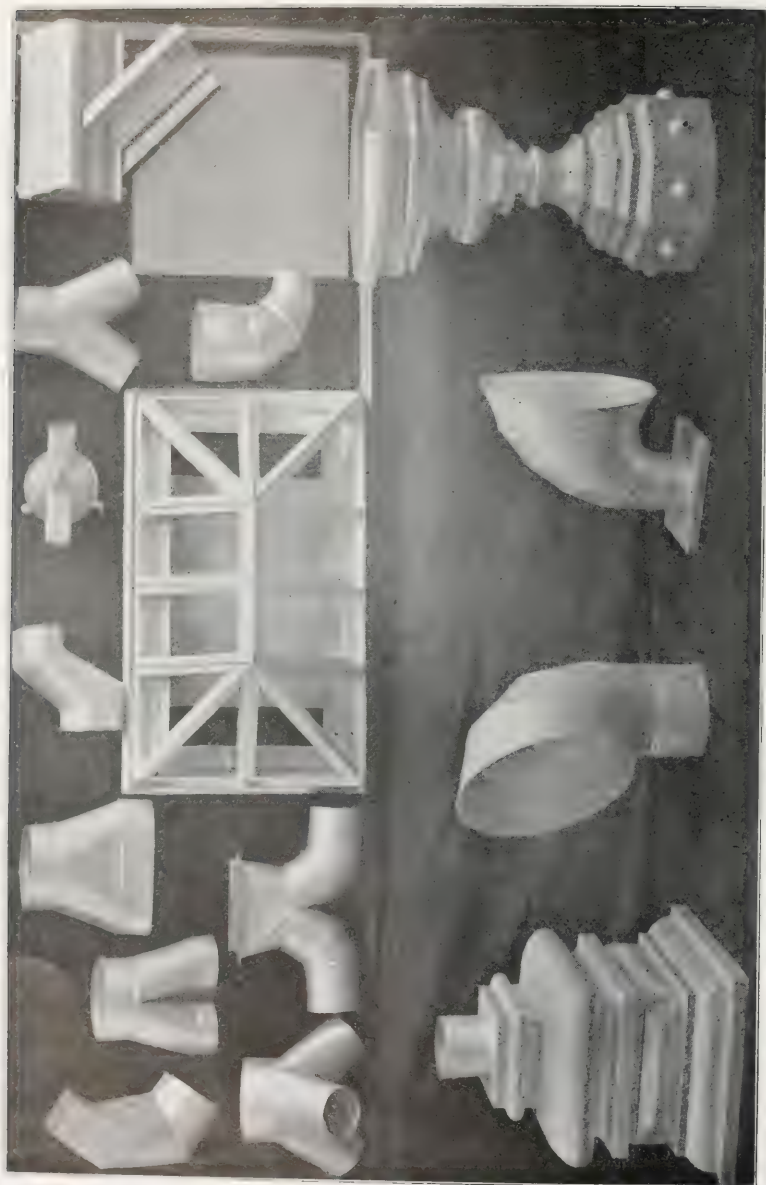
scratch-awl, two-foot rule, two files and a pair of soldering coppers. The shop is well supplied with large tools and machines operated by hand power, consisting of one eight-foot and one four-foot cornice brake for bending light sheet metal, squaring shears, beading machines, tin folder, burring machine, wiring machine for wiring the edges of pans, pails and kitchen utensils, turning machine for turning edges on light metal, grooving machine for making seams on cylindrical forms, numerous stakes for forming and seaming, forge, hammers, stakes and small tools that are required in constructing hand wrought copper and brass work. This course calls for only a moderate equipment of tools and hand power machines of small cost.

GENERAL STATEMENT OF THE COURSE.

The major part of this course is devoted to the practical handling of the tools of the trade under the scrutiny of the instructor. The minor part of the course consists of instruction in geometry, practical projection, development of surfaces, tinsmithing, heating and ventilating work, architectural sheet metalwork, skylights and hand-wrought metalwork in copper and brass. The class makes all the tinware and everything that is to be made of sheet metal for institution use, thus obtaining practice in the processes of working tin plate, galvanized iron, zinc, sheet lead, copper, brass, wire, and solder. The class in tinsmithing has just completed the construction of twenty-five hundred, three-gallon tin cans for institution use. The boys in the second year class recently designed and constructed three hundred feet of galvanized iron cornice, and placed it in position on a new building that is being erected for trade school purposes. Our shop is giving the students of this course much practical experience such as they would receive in the best shops in our larger cities.

SUPPLEMENTARY COURSE.

Supplementary instruction is given in shop mathematics, especially mensuration, special problems dealing with capacity of pipes used in heating and ventilating work, area, and cubic contents of sheet metal forms. Individual instruction is given to the exclusion of class work. All work is inspected by the instructor. After each piece of work has been completed, it is examined, and if there are any defects in the work, time is taken to discuss the trouble, and an explanation given as to how it can be avoided in the future.



SHEET METAL WORK.

No set time can be given for the completion of this course. The work is wholly individual, and the student's progress depends largely upon his aptitude for the trade and the use he makes of his opportunities.

TINSMITHING.

After an explanation of the names and uses of the various tools and machines, the students are set to work on the following problems:

Flat seam from sheet of tin of the dimensions given in a scale drawing, using the folder and grooving machine; soldering flat, upright, and slanting seams; forging soldering copper; piece of three inch pipe, figure circumference from diameter, two pieces of pipe that will fit together; pint tin cup, giving practice in the use of the folder, wiring, double seaming and burring machines; small funnel; flaring dipper; one quart pail with cover raised by hammering on block of wood; grocers' scoop; square pan with folded corners. The principal feature of this problem consists in defining the outline of the corners so that when formed the upper edges of the folded part will finish neatly under the wire. A pan thus made is water-tight without soldering.

The students are kept on the above problems until they thoroly understand the manipulation of the tools and machines used in constructing them.

MECHANICAL DRAWING.

A course of drawing is given that will enable the student to acquire proficiency in the use of instruments, acquaintance with elementary geometrical constructions, an understanding of orthographic projection and development, with the application of these principles to working drawings, exercises in tracing, and blueprinting. The student is first given a series of lessons beginning with the simplest problems and in the course embracing all of the geometry likely to be required by the sheet metal-worker. Problems in projection and intersections are next given. To properly represent the intersections of the surface of solids, or to draw the miter line, as it is commonly called, is the last process of projection employed before the patterns for sheet metalwork may be developed. This is a very important part of the drawing, and the correct fit of the pattern in work of this class often depends entirely on the accuracy with which the line of intersection is drawn. A pattern cannot be made until the drawing is complete in this particular.

DEVELOPMENT OF SURFACES.

A development is a drawing in which the full view of all the surfaces of a solid are represented. The figure thus produced is, by the draftsman, called a development, and by the sheet metalworker, a pattern, both terms being similar in their meaning. Solids whose surfaces are capable of accurate development, are of frequent occurrence in the sheet metalworking trades. To this class belong all prismatic, cylindrical and conical forms, whether of regular or irregular geometrical form. It includes all objects or articles whose covering may be formed without submitting to the operation known to sheet metalworkers as "raising" or "bumping." The problems are separated into three general divisions in order that their development may be studied in a systematic manner:—(1) Solids developed on parallel lines; (2) Solids developed on radial lines; and (3) Solids developed by triangulation. Models are made from sheet metal, giving practice in construction. These models will at once show any error in the patterns which might otherwise be overlooked. Patterns for the following forms are developed:

1. Development by parallel lines. Pentagonal prism; cylinder; octagonal prism; intersected cylinder; two intersecting cylinders; two intersecting prisms; cylinders that intersect irregularly; octagonal prism and an intersecting cylinder.

2. Development by radial lines. Cone; quadrangular pyramid; octagonal pyramid; intersecting cones; cylinder intersecting a cone; irregular frustum of a cone.

3. Development by triangulation. Irregular solid having parallel bases; irregular solid having inclined bases; irregular solid whose upper base is rightly inclined, and whose base is a portion of a cylinder.

PRACTICAL PATTERN PROBLEMS.

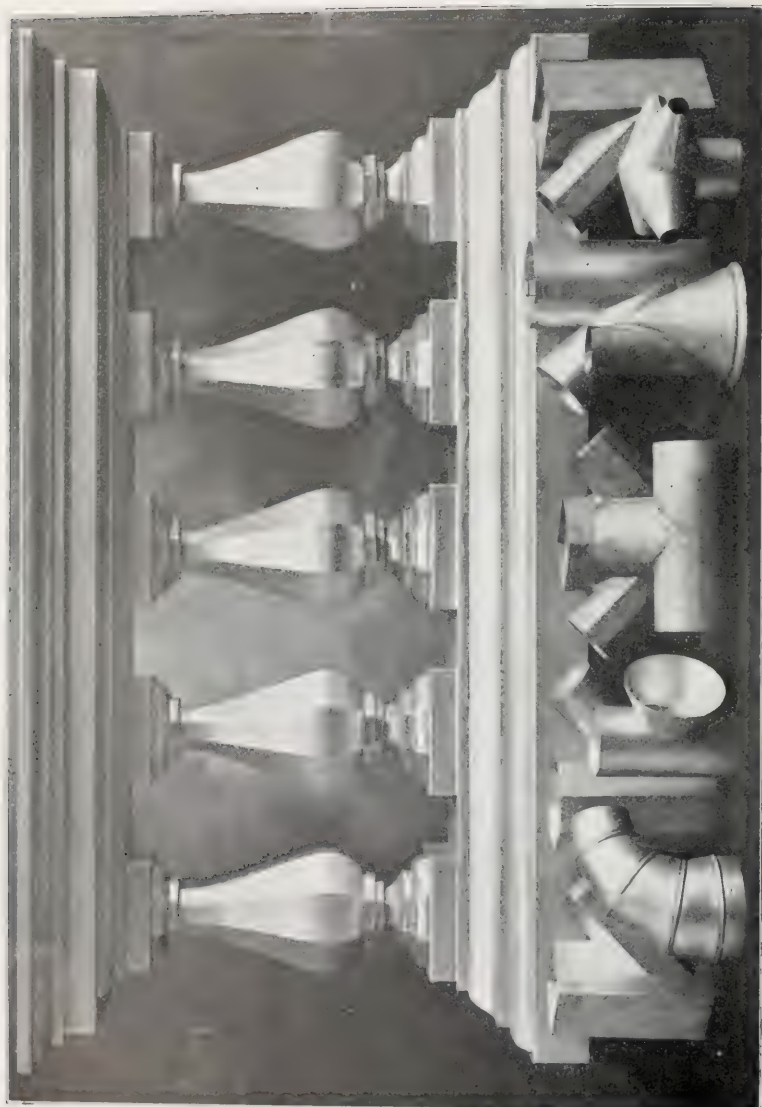
Practical workshop problems are presented, such as arise in every day practice. An actual trade object forms the subject of each problem. No work is introduced that is not liable to arise in the course of the student's experience as a sheet metalworker. After the pattern has been developed on detail paper and the necessary allowance for laps, seams and edges have been added, it is transferred to the sheet metal, cut, formed up, and the parts assembled. The problems in this section of the course, have been selected with a view to giving the student needed

practice in the development of patterns relating to pipes, elbows and irregular forms used in heating, ventilating, blow-pipe and building construction. The principles of construction previously introduced in the problems in projection and development of surfaces form the entire basis for the solution of the following problems: three pieced 90 degree elbow; six pieced 60 degree elbow; four pieced conic elbow.

The reducing or conic elbow is often used to complete a turn between pipes of different diameters: three pieced rectangular elbow having semicircular ends (elbows of this form are commonly used in making turns from a vertical to a horizontal line of pipe, and are very generally used by furnace workers); rain water cut-off; eave-trough miters; ventilator heads; regular flaring roof flange (this is a form of roof connection commonly used by sheet metalworkers; its purpose is to secure a water-tight joint at the place where the vent pipes of a building come through the slanting sides of pitched roofs); furnace setter's boot; two-way branch Y; three-way Y; four-way Y (there are many cases that arise in the course of the blow-pipe fitter's experience where it is desired to take from a main pipe a number of branches, each of which shall run in a different direction. These forms are all well adopted to the conditions of this problem); ship ventilator; octagon lawn vase (the principles employed in the construction of the patterns for this problem, are those of the parallel method, and in drawing the views required the student obtains practice that is of great assistance to him in his daily work. With slight modifications of the drawing a figure of any desired number of sides can easily be produced).

PROBLEMS IN MOLDING AND ARCHITECTURAL SHEET METALWORK.

There is no trade in the building line to-day that has made such rapid progress as that of sheet metal cornice or architectural sheet metalwork. It has become one of the substantial industries of the country, comparing favorably with almost any other mechanical branch in the building trades. Designs are executed in sheet metalwork which are impossible to produce in any other material. No drawing is too complex or too difficult. Drawings form a very important part in architectural sheet metalwork. In order to give practice in the processes of development as applied to moldings, a number of practical problems are given the student. Details are made from scale drawings; patterns developed and transferred to the metal, cut, formed up on the brake, and the parts soldered together at the bench; square return miter; square face



SHEET METAL WORK.

miter; regular octagon miter; butt miter; pediment molding with raked profile; square conductor head; plain window cap; door cap; plain cornice; ornamental window cap; gable pediment with sun panel; dormer window; ornamental finial; square turret; bay window.

Skylights. Draw profiles of various shaped bars and curbs; develop patterns for curb of a hipped skylight; develop patterns for hip bars; construct a flat skylight, a double pitch skylight, hipped skylight with ridge ventilator.

ART METALWORK.

Work in sheet copper and brass has been added to this course with gratifying results. The problems give practice in the processes of cutting, filing, etching, drilling, riveting, hammering, saw piercing, raising forms from the flat metal, coloring, and finishing. No work is done simply for practice. The time is spent in making useful articles of artistic worth. The following problems include some of the work done in this course:—candle holder, letter opener, napkin rings, card trays, ink pots, book ends, stationery holder, roller blotters, calendars, pen trays, match boxes, crumb tray set, ash tray, finger bowl and tray, bowl, paper knife, serving tray, fernery, candle sconce, piano lamp, reading lamp, art glass shade, dining room dome, etc.

THE RESULTS.

The foregoing is a description of one of the several branches of the manual training and trade school work provided by the board of managers of this institution. The plan is to place the boy, when he first arrives, in the proper department and retain him there as long as he remains. He goes to the literary school while it is in session one-half of his work day; the other half he spends in the shop, and in both every effort is made to induce him to do honest and thoro work. The object of this drill is to establish in him, as nearly as possible, habits of industry, to prepare him for self support, and thus accomplish his reformation and prevent his returning to a criminal course.

Everything is done for the boy's good. His welfare is the only thing that is considered. He is given splendid advantages. Whether he improves them or not depends upon the boy. Whether or not he changes his course when he reaches the outside also depends largely upon the boy. Upon leaving the institution he starts anew in life and with a preparation he did not have before. He is older, his judgment is

more mature, his experience admonishes him that there is a better life to live than that of crime, he has had some training both of mind and hand, and he is inspired with the thought that he can accomplish something if he will. Whether he will or not depends upon the boy and his environment. He may or he may not make good, but nearly every boy, when he leaves the institution, has the good resolution. The most of the boys succeed. Authorities tell us that from 70 to 80 per cent of them are never heard of again in the courts.

Boys that receive their training in this school of sheet metal trade, have no trouble in securing positions as advanced apprentices in commercial shops, after leaving this institution. After a few months' practical experience in these shops they are advanced and receive mechanics' wages. In the cities and larger towns, the schedule of wages for this work runs from forty to sixty cents per hour for an eight hour day. As an example, I have in mind a boy who was made foreman of a large sheet metal establishment in the city of Chicago one year after leaving this institution, who is doing good work to the satisfaction of his employer.

If the wayward boy can thus be reclaimed and be developed into a good citizen, the work is worthy of all commendation.

"OF THE SOCIAL CAUSES OF POVERTY, I AM PARTICULARLY INTERESTED IN TWO. THE FIRST IS THE COMPARATIVE FAILURE OF OUR PRESENT EDUCATIONAL SYSTEM TO GIVE TO BOYS AND GIRLS SUCH VOCATIONAL TRAINING AS BEST FITS THEM FOR THE CALLINGS WHICH THE GREAT MAJORITY OF THEM ENTER. I MEAN TRAINING THAT WILL FIT THE PUPILS FOR THE SO-CALLED SKILLED OCCUPATIONS AND WILL SO EQUIP THEM THAT UPON LEAVING SCHOOL THEY WILL HAVE THE BEST POSSIBLE PROSPECT FOR FUTURE USEFULNESS AND INDEPENDENCE. IN THIS LACK OF VOCATIONAL TRAINING WE FIND, I BELIEVE, ONE FRUITFUL CAUSE OF MANY AIMLESS CAREERS, WHICH CAN LEAD TO NOTHING THAT IS GOOD AND MUST TEND TO SWELL THE NUMBER OF INEFFECTIVES."

The welcome address of GOVERNOR FOSS before the Social Workers' Convention, BOSTON EVENING TRANSCRIPT, June 8, 1911.

EDITORIAL

AS VOCATIONAL EDUCATION makes its modest bow and takes its place at the foot of the long line of American educational journals, it craves the good wishes of all its readers. Its aims are not fundamentally selfish; its desire is to cooperate with and be helpful to the great number of educators, men of affairs, manufacturers, social reformers, labor leaders and others who are interesting themselves in working out the problems of education for citizenship in a democracy, and especially that side of such education which prepares men directly for vocations. This new journal represents no faction or special interest; it is open-minded and seeking wisdom from whatever source it may come. It is not, however, without convictions.

In no sense is VOCATIONAL EDUCATION in opposition to the ideals of cultural or general education, but its special field is that comparatively undeveloped side of education which has to do with preparation for useful industry. Its aim is not, therefore, to curtail general education, but to supplement it. VOCATIONAL EDUCATION aims to help in extending the scope and increasing the efficiency of public education.

—C. A. B.

The Principle of State Aid in Education A visit to Germany always invites comparisons—social, educational and economic—with American conditions. Some people return with an “America-is-good-enough-for-me” feeling. Others would, if they could, have our schools and social betterment ventures “made in Germany” and imported with all the trade labels left on. The German government does things; of that we may be assured. It sees the need of forests, so it plants and takes care of them. It believes in educating people, so it enacts a compulsory school law and then strictly enforces it. It commits itself to an industrial education policy and then systematically goes about it to accomplish the purpose. It waits neither for private initiative nor local opinion. Neither the so-called freedom of the individual nor the so-called local rights of a particular community is its concern.

To those who do not like her methods, such procedure is called paternalistic. Those who do not believe in our democracy and make sport of our shortcomings believe that things will be done only when we have a God-given king. Still others would apply the *laissez-faire* theory and let things slide. A good democrat, however, well grounded in his faith

in American democracy, will not lose his belief in a government of, by and for the people thru one or, let us hope, many trips to Germany. At the same time he must recognise the need for state leadership and accomplishment sanctioned by public opinion.

The American loves his freedom; he boasts of it. We have much more freedom than many foreign countries; but we have false ideas of freedom, and that is wherein lies the trouble. Freedom means a right to the exercise of our duties—not a license to avoid them.

It is certain that the education of a people, their health, their protection from contagious diseases, their right to a pure water supply, and their economic rights to control certain public utilities are not matters to be governed by the ignorance nor the selfishness nor the personal whims of individuals or localities.

In early days education was thought to be purely a matter of individual concern. It was conceived as being the rightful heritage of the opulent which might be doled out as a public or private charity to the poor. We now declare that elementary and secondary education at public expense is the rightful heritage of every child, and he is bound to receive this heritage whether he wants it or not, if for no other reason than for the safety of the republic. We have adopted the doctrine that all the resources of the people are bound to educate all of the children of the people for the protection and conservation of all the interests of the people. Our American school system is unique. It is superior in many respects to the German system, but the latter country has the advantage of exercising intelligent, authoritative, and unquestioned control of all its schools. While it is surprising what we have accomplished by voluntary effort, unauthorized and practically unsustained by law, it is nevertheless true that we might have accomplished much more if we had a systematic organization of our schools instead of being at the mercy and caprice of local communities that can not see beyond the obsolete methods of the red schoolhouse or the possible ten-cent increase in the tax rate.

We need an educational system which is well and strongly knit together, which rests upon law and is practicable in its enforcement, a system which reaches everywhere and which compels every child in the state to come within its beneficent influences, a system which shall have not only a plan but an object, a system in which educational activities shall not clash but shall cooperate intelligently and understandingly with a definite purpose of attaining positive and secure results.

We already believe that every child should be in possession of enough learning to enable him to act intelligently and understandingly in his relations with others. We must now take an advance step. We must go far enough with the preparatory training of the child to enable him to stand alone and begin to walk on his own account. In other words, when he leaves the public school he must know what he is going to do and be somewhat prepared to do it.

Application to Industrial Education Now all this looks very simple, and the reader wonders what it has to do with industrial education. Here is the point: If we expect to develop industrial training in our schools it must be thru state effort working in cooperation with local effort. It must have intelligent direction, the authority of law and the backing of state money. Furthermore, it must connect with factory laws relating to child labor.

One asks, why? The answer is not difficult. The state needs an intelligent and efficient citizenship. Her material prosperity depends upon it. No child should be prevented from having an education which fits it to do its share of the world's work just because it happens to be born in a community which is mentally and financially poverty stricken. State laws compelling communities to furnish an elementary education have long been in evidence. At one time they were thought arbitrary. Now they are accepted. The state has assumed the responsibility of regulating hours of child labor and factory conditions. At first this action was considered paternalistic; now everyone recognizes that it is for the common weal. If it is in order for the large wealthy city to give an education for industrial as well as for citizenship efficiency, then it is true that the child in the poorer industrial city needs similar training. No child should be disadvantaged by the locality in which he lives.

It is not alone the child which should be considered; the state as a whole requires that every citizen become a self-supporting unit; the benefits which accrue to the individual also come to the state. Our John needs to know how to read and write wherever he lives in the state. The locality which would deny him this much would be poor indeed. But John needs to be a productive member of society, and the poverty stricken town with its lack of taxable property feels that it can not afford to establish an industrial school. Very likely we must accept its word for it; but neither can the state afford to maintain jails, almshouses and a police force to keep inefficient citizens in line just because that town

is poor. The state must see to it that the educational chances are evened up. The whole state is taxed to keep unproductive persons in jails and asylums. Why not a state tax to support an educational system which would keep them out?

It is evident that certain phases of education are matters of individual concern to the child and to the community. Other phases concern the state more directly. While industrial education is an advantage to the individual and will develop him as an individual and will contribute to his own welfare, we may expect that beyond the individual field there lies the broader one of training the people as a whole for efficient living for the good of the state. The apathy of local school boards and the sense of town poverty can not be allowed to stand in the way.

There is no intention to take away any local enterprise and responsibility in developing a system of industrial education. But central authority must see to it that it is done, and provide the means and methods for assisting in the doing of it. In this Germany is ahead of us. She waits for no dilettante school board or city council to move. Germany's centralization of authority in industrial education economizes effort and properly adjusts the work its various communities may contemplate. We find no duplication of effort in closely allied communities which would cause educational waste. We see that her industrial schools are planned with reference to the educational and industrial interests of the various states as a whole.

There is no intention of conveying the idea that the various communities in our states should not exercise reasonable control over the industrial schools which they tax themselves to support partially. These schools must be close to the people, physically as well as administratively. The local boards should have the authority to purchase equipment, to select teachers, to provide proper courses of instruction; but if they expect to obtain state aid they must meet the reasonable requirements of the state with reference to these features. What should these requirements be? Simply that they meet the aim and purpose of the scheme—the training of workers. This means trained mechanics for teachers and equipment sufficient for the purpose and a course of study which accomplishes the result—nothing more, nothing less.

The State's Share of the Expense How much of the expense should the state bear? Theoretically it should be just that proportion of the total cost that the state derives benefit from the establishment of industrial work. The community gets some benefit—most of it, if the

child continues to live in the community in which it has been trained. The state as a whole gains the rest. In Connecticut the state bears all the expense. Massachusetts pays one-half the expense of maintenance. In New York State the proportion of the state aid decreases as the community appropriation increases. For example, the state pays approximately from one-half to one-third of the salary of the first teacher; for the second and succeeding teachers approximately from one-fifth to one-seventh. If the school employs one teacher the community receives \$500, two teachers \$700, three teachers \$900, and so on. The more the community taxes itself to support the industrial work the less in proportion the state pays. Without intending to invite comparisons, it may be said that the plan in New York is reasonable and equitable, for the larger and wealthier cities able to bear the additional expense of the work are likely to retain in their limits all children who receive the benefits of this instruction, thereby getting full return for the outlay. In the smaller communities the population is more liable to shift and the young people move to larger cities. At the same time, the smaller and poorer community having only two or three industrial teachers has been given very substantial aid as compared with the larger city in furthering its industrial work.

This is not the time nor place to discuss the German system. It is clear that America must develop her own methods. But we might as well make up our minds to *adopt* Germany's splendid purpose, *adapt* her methods and become *adept* in carrying them out. We must have the sentiment of state organization and recognition. We must maintain close relationship between school work and factory work. We must have state aid and expert advice. In short, industrial education, in common with all education, is the function of the state as much as the local community. The state expects every man and woman to contribute to its well being—social, political and economic. It cannot expect to receive what it does not authorize by law, encourage by expert advice and support by state aid.

—ARTHUR D. DEAN.

The Practical and the Cultural The movement for vocational education has now assumed such proportions that there is no longer any doubt as to its existence or as to the direction which it is taking. It is apparent, however, that its *purpose* is not as clearly defined. At least this purpose is not as clearly comprehended by the teaching profession generally.

It is our belief that the purpose is one of the most characteristic features of the movement. While some of the work of the traditional school is purposeless, having persisted long after the reasons for its introduction into the curriculum have disappeared, all of the work in the newly established industrial schools is expected to be purposeful and definitely and immediately so. Furthermore this purpose can be clearly explained only on the hypothesis that, so far as it is seen in the public schools, it is a concession made by the educator to the demands of organized social forces outside the schools. It becomes, therefore, a compromise between the aim of society and the somewhat narrower, or at least more specialized aim of the teacher, and so may be said to be dual in its nature.

The demand of society may be summed up in the statement that it desires the child to be developed to the point where he becomes economically, morally, and intellectually adapted to his peculiar environment. The ideal of the educator has been to develop all pupils to the point where they can adapt themselves to any and all environments in which they may be placed.

It is not our purpose to discuss whether either aim is rational or just, it is sufficient to note that there is a certain angle of divergence between the two ideals, and that the vocational education given in the public schools is a compromise between these two divergent aims. This is true of all kinds and all grades of schools from the elementary thru the university. It may be said also that each grade of school has felt the influence of the movement and has yielded to it with varying shades of willingness.

The educator has generally felt, and in fact still feels, that his peculiar purpose will be gained in proportion as his pupils can be induced to submit themselves to the training afforded by the traditional work of the schools, and that the *other* purpose, that of organized society, will be achieved by the addition of subjects, and the employment of methods not commonly found in educational institutions. There seems to be a feeling that culture on the one hand and efficiency on the other will not be advanced by the pursuit of one and the same subject. It is felt that the course of study must be made up of both types of work, and the compromise to which we have alluded, is more or less clearly seen by noting the extent to which one purpose or the other is made to predominate.

As an illustration one might point out that the difference between a trade school and a technical high school is mainly that the first devotes a large proportion of the time to industrial subjects and trade technique,

while the latter treats these matters as secondary, altho valuable, and emphasizes the importance of giving with the industrial work as much of the typical high school work as possible, whether closely or remotely related to the vocational purpose.

In fact one might almost classify industrial schools, of whatever grade, on the basis of the proportional representation of the so-called practical and the cultural subjects.

Thus far there seem to be few educators who are endeavoring to discover a means whereby the practical shall be made cultural in itself. Such a proceeding would be regarded as a sort of educational alchemy, a fruitless attempt to turn a base metal into gold.

At best most educators duplicate today the wise and effective methods of the early Jesuits. We are told by Quick in his "Educational Reformers," that "when the Jesuits were first formally recognized by a Bull of Paul III in 1540, the Bull stated that the Order was formed, among other things, 'especially for the purpose of instructing boys and ignorant persons in the Christian religion.' But the Society well understood that secular was more in demand than religious learning, and they offered the more valued instruction, that they might have the opportunity of inculcating lessons which, to the Society at least, were the more valuable."

In much the same way, industrial schools are offering instruction in the various trades today, expecting, it is true, to give that instruction as effectively as possible, but planning also to include in the curriculum as large a measure of "cultural subjects" as the pupils can be induced to take. Of the two purposes, the one most prominent in the minds of the pupils is the getting of a training which has a real economic value, while the one appealing to the teacher is the giving of the immeasurable benefit which will result from two or three years' additional contact with the ideas and ideals of school life.

It is not our purpose, at this time, to attempt to measure either the economic value of the cultural work in the schools, or the cultural value of the specific trade training, but merely to point out the most significant feature of the situation. The industrial school, of whatever grade, appeals primarily to the vocational interests of the pupils, and without this direct appeal to a vital incentive the majority of the pupils attracted to these schools would attend no other. They are thus saved to a longer period of *school life*, but, unless they have been deceived, they have also been provided with the means of a more intelligent entry into their *vocational life*.

Function of the Pre-Vocational School Perhaps there is no type of industrial school where this dual purpose is so clearly seen and, on the whole, so frankly acknowledged, as that which we are coming to call pre-vocational. These schools have been variously named industrial, semi-industrial, elementary industrial, and special industrial, but their purpose has always been to revise the course of study in the upper elementary grades, both as to content and method, in order that the work given might appeal to those children whose vocational interests were drawing them away from school altogether at a time when the little education which they had received was so poorly assimilated that there is no room for doubt that, in many cases, it was practically valueless.

These schools have differed in the methods employed but the vocational motive has always been utilized, first as a strong incentive to attract the children, and second as a vitalizing principle in determining the content of the course of study. The schools have invariably been an integral part of the school system, articulating with it in the most natural way.

They have received relatively little attention from educational committees and societies organized to study the problems of industrial education, because these organizations have commonly followed the lines laid down by the Massachusetts Commission on Industrial Education, providing for a separate or independent school.

It will be recalled that in the first report of the Commission, considerable space was given to the consideration of "the two wasted years." Those were considered to be the years between fourteen, when children were permitted, by the law, to leave school, and sixteen, the earliest year at which satisfactory employment was supposed, by the writers of the report, to be available. It was to profitably employ these "two wasted years" that the "separate" industrial school was planned. The school was open to children of fourteen years of age without respect to their scholastic attainments. It was *closed* to boys and girls of twelve whose years between twelve and fourteen would quite as surely be wasted *in the existing schools*, because of their lack of interest or ability or both, to say nothing of their almost certain loss to even the separate industrial school thereafter because of the distrust in and the dislike for schools in general which the enforced attendance would engender. It has been the desire to save "the two wasted years" *before* fourteen, and as many as necessary *thereafter*, that has prompted the promoters of the pre-vocational schools and classes to organize these experiments.

These promoters have frequently been accused of *cheapening* education and of departing from its high ideals, but perhaps they have been the truest of all to the principles laid down by the science of education. They have recognized, too, the psychological fact that interest is the determining factor in all education, and they justly admit that the vocational motive is quite as valid in the upper elementary grades as in the university.

In other respects the promoters of pre-vocational work in the elementary school take an advanced position in regard to education. They recognize that education is a life process and that the schools at best can but lay the foundation of it. They are not to be criticized, therefore, if the amount of industrial work actually given in two or three years seems to be inconsiderable, for they are not attempting the impossible. In their short existence, however, they have demonstrated beyond a doubt their ability to prolong the school life of a large percentage of the children, and to so connect the education given therein to real life that hope of continuity and permanency is strong and apparently well founded.

And finally these schools, articulating as they do in a logical and natural way with the common school below, and the vocational high school above, will reach a much greater number of children than any other plan thus far attempted or proposed. They thus become an evolution of the present system, not an addition to it.

—FRANK M. LEAVITT.

A New School Code

Elsewhere in this issue will be found a digest of recent legislation concerning vocational education, presenting matter of vital interest to all students of education. One of the most significant portions of this presentation is that relating to the provisions made for vocational education and the manual arts in the new code of school law recently enacted by the State Legislature of Pennsylvania. The liberal, and yet well-balanced, provisions made for the newer forms of education all along the line give evidence of careful study on the part of the framers of this law, as well as intelligent comprehension of the problems that confronted them.

It is especially worthy of note that provision is made for the accommodation of pupils who may apply from other than public schools for admission to special courses offered in the public schools, such as domestic science, manual training, vocational courses, etc. Newspaper

reports credit the parochial school interests with having secured the enactment of this unusual provision, and give the situation at Altoona as typical of the conditions which inspired it. About a year ago the Pennsylvania Railroad promulgated an order to the effect that candidates for the apprenticeship courses in the shops at Altoona must have had manual training in the elementary schools. This action barred out pupils from the parochial schools and others that were unable to provide the necessary facilities. Application was made to the board of education for permission to send pupils to the public schools to the manual training classes only, which permission was refused. The matter was taken into the courts, but before a settlement was effected the new school code was enacted at Harrisburg, as indicated.

**Establishing
a Precedent**

If the explanation offered is correct, the action taken is to be regarded as evidence of the awakening of an interest in vocational education in quarters where hitherto there has been indifference if not hostility, and for this reason it is highly important. Aside from this consideration, however, the action is of moment because of the precedent which is thus established. The provision seems to be a perfectly reasonable one, and justifiable on the ground that if the state undertakes the responsibility for the complete education of its youth between certain specified ages, it is, *ipso facto*, liable for any fraction of that responsibility.

The facts before us mean much more than the mere spread of sentiment in favor of the "practical" in education, tho they are chronicled with much satisfaction on this score. We have here the public acknowledgement, enacted into the law of a great Commonwealth, of the responsibility, resting on those entrusted with authority, for studying the problems of vocational education in the elementary schools, and the further acknowledgement, on the part of private school interests, of a keen desire that their pupils shall not be deprived of the benefits which they confidently expect to develop from the efforts of the public schools in these directions. The situation certainly looks hopeful for the children.

—WILLIAM T. BAWDEN.

OF CURRENT INTEREST

RECENT LEGISLATION CONCERNING VOCATIONAL EDUCATION.

The laws enacted by the legislatures of the several states in 1911 are of special interest to every friend of vocational education. Among the eastern states, Maine has attracted the attention of the whole country by the "Special Act for the Encouragement of Industrial Education." This act has eight sections. The first section points out the duties of the superintendent of public instruction in regard to industrial education. He is to investigate methods, aid and advise in the introduction of courses, and inspect and report on all courses aided by the state. Section two is the feature of the act which is the occasion of much discussion. It provides for the introduction into all of the state normal schools such courses in manual training, domestic science, domestic art, and agriculture as will enable the graduates to teach these subjects in the rural and graded schools. In one normal school the courses are to be so extended as to prepare students to become special teachers of manual training, and in another, the course in domestic science is to be similarly extended. It is planned that the supervisors of these two extended courses will act as statewide supervisors, lending their advice and assistance anywhere in the state as the need may arise. An appropriation of \$4,000 has been made for these courses in the normal schools. Payson Smith, State Superintendent of Schools, says of the new plan, "In the normal schools, as elsewhere, we do not intend to build up a system that is dependent upon expensive equipment for its usefulness. The teachers will be trained so that they can go into the rural towns and places where there is no machinery, gas or electricity, and teach the pupils of the public schools something worth while."

Section four provides state aid for secondary schools having or introducing courses in mechanic arts, domestic arts and agriculture, not to exceed \$500. Section six provides state aid for evening schools which include in their course of study freehand or mechanical drawing, domestic science, or manual training, or the elements of the trades. Section seven relates directly to trade schools.

"Sec. 7. The superintending school committee of any town when authorized by vote of the town shall establish and maintain as a part of the public school system of such town a general industrial school for the teaching of agriculture, household science, the mechanic arts and the trades. Such general industrial schools shall be open to pupils who have completed the elementary school course or who have attained the age of fifteen years. Such schools must be supported by funds raised in addition to the usual funds for the schools. The state will aid such a school, to the amount of two-thirds of the cost of instruction, not to exceed \$2,000 for any one town in one year."

Section eight states the amount of the general annual appropriation for the promotion of industrial education, \$27,500. It seems to have been the aim of the framers of the act, as nearly as can be gathered from published discussions, not to especially favor the establishment of regular trade schools, but rather to make the work of the industrial classes in the ordinary school system of such a funda-

mental and practical nature as to sufficiently stimulate industrial effort. The manual arts work of the high schools is to be made vocational in character, meeting the particular needs of each community. In one town, shoe-making will receive attention, in another, paper-making, and so on.

New Jersey has passed a law providing that a commissioner of education be appointed by the governor for a term of five years. He is to have four assistant commissioners, one of whom is to devote his time to the inspection of industrial education including agriculture.

PENNSYLVANIA.

Pennsylvania has enacted a new school code, several provisions of which have a very important bearing on the future of vocational education. Three of the articles contain clauses which we quote as being worthy of detailed consideration. Article four, on the duties and powers of boards of school directors, authorizes any board to "establish, equip, furnish and maintain the following additional schools or departments for the education and recreation of persons residing in said district, which said additional schools or departments, when established, shall be an integral part of the public school district, and shall be so administered, namely:—high schools, manual training schools, vocational schools, domestic science schools, agricultural schools, evening schools, kindergartens, libraries, museums, reading-rooms, gymnasiums, play grounds, schools for blind, deaf, and mentally deficient, truant schools, parental schools, schools for adults, public lectures, together with such other schools or educational departments as they, in their wisdom, may see proper to establish." This paragraph has a proviso which reads: "Provided that no pupil shall be refused admission to the courses in these additional schools or departments by reason of the fact that his elementary or academic education is being or has been received in a school other than a public school." Article ten of the code directs the state superintendent of public instruction to "appoint...one expert assistant in agricultural education, one expert assistant in industrial education, one expert assistant in drawing." Article sixteen, in prescribing the courses of study for the elementary schools, provides that there shall be taught the common English branches, "together with such other branches including...drawing, physical training, elementary manual training, elementary domestic science, and elementary agriculture as the board of school directors in any district may prescribe." These provisions plainly show that the makers of the code had in mind the growing interest in and demand for industrial education.

LEGISLATION IN THE CENTRAL STATES.

The central states have been more active than any other section in legislating for vocational education. Ohio, Indiana, Wisconsin, Michigan, Minnesota and North Dakota all have enacted measures of importance.

Minnesota has passed two bills of special appropriation for industrial work, known as the Putnam act and the Benson-Lee act. The way in which these acts affect vocational education is that in the list of subjects for the teaching of which

state aid is to rendered agriculture is included. Trade schools are not specifically mentioned. The class of schools affected by this act are high, graded, and consolidated rural schools. In order to obtain state aid these schools must have in connection not less than five acres of land for experiment purposes.

The Benson-Lee act is one providing aid for schools which cannot qualify for the larger appropriation of the Putnam act. The appropriations are listed as follows: for Putnam act schools, \$210,000, each school being limited to \$2,500 plus \$200 for each associated district, \$150 of which is paid to the central school and \$50 to the associated rural school; for schools under the Benson-Lee act, \$125,000, each school to receive \$1,000.

WISCONSIN.

Bearing more directly, perhaps, upon vocational education is the combined Stout Institute and Vocational Education Bill which passed the legislature in Wisconsin in June. By this bill the state takes over the ownership and control of Stout Institute, to be managed by a board appointed by the governor. The trustees were given two months in which to turn over the property to the state free of incumbrances and claims. The bill adds thirteen new sections to educational statutes of Wisconsin.

The bill creates a state board of industrial education to consist of six members to be appointed by the governor, three of whom shall be employers of labor and three shall be skilled employes, and the state superintendent of education, the dean of the extension department and the dean of the college of engineering of the University of Wisconsin shall be ex-officio members of the board.

The board is given all control over state aid given under this act, shall hold quarterly meetings and make biennial reports.

The state superintendent is required to appoint an assistant for industrial education who shall, under the direction of the superintendent, have general supervision over the public industrial schools and over all public evening schools, continuation and commercial schools created under this act.

Local boards of industrial education are provided in the third section of the act as follows:

On this local board shall be the city superintendent or high school principal or if there be no such officer, the chairman of the local school board and four other members, two employers and two employes, to be appointed by the local school board and who shall serve without pay.

Industrial, trade, commercial, continuation or evening schools shall be established if the local board receives a petition signed by at least twenty-five persons desirous of attending such a school. A tax rate of not over one-half mill is authorized for the maintenance of such a school. The courses of study must first be approved by the state superintendent and state industrial board. No one city may receive over \$10,000 of state aid for these schools and not more than thirty schools established under the act shall receive state aid. Pupils to enter must be fourteen years of age or over.

The paragraphs of the bill in regard to Stout Institute invest the state industrial board with complete control of the institute and appropriates \$20,000 annually for maintenance.

MICHIGAN.

Michigan has two new acts on vocational education. Act twenty-two empowers school districts to establish and maintain trade, vocational, industrial, marine and manual training schools, gymnasiums and scholarships, and to accept gifts, legacies, and devises for the same. Act twenty-nine amends the law in regard to county schools of agriculture, the state superintendent being allowed to approve two such schools in each county, instead of one. No mention is made in either act of state aid for such schools, so it is evidently intended that the schools shall be supported by the municipalities in which they are located or by endowments or bequests.

INDIANA.

The new laws in Indiana are two in number. The first law provides for a tax levy for trade schools. This levy is to be three cents on the hundred dollars in addition to any other school taxes in cities of over 200,000 population which have secured title to a trade school by gift or donation. Such a trade school property shall have been previously used as a school for boys, teaching printing, lithography, machinist trade, moulding, type-setting, brick-laying, tile setting, pattern-making, and pharmacy. The tax levy is for the purpose of continuing and maintaining such schools. Other trades may be added at the discretion of the school authorities. A provision is inserted that no portion of this tax levy shall be used for any other purpose. This bill had a definite aim which was to make it possible for Indianapolis to take over and maintain the Winona Technical Institute. The city had felt the necessity of establishing a technical school and was anxious to get the Winona institution while it could be had at a low cost, and thus save the expense and delay of locating a new site and constructing buildings.

The second law provides a "commission for investigation of industrial and agricultural education," to use the exact name given in the act. It is to consist of seven persons appointed by the governor either from within or without the public service. This commission is to work without compensation but is allowed necessary hotel and traveling expenses, and may appoint a secretary and fix the amount of his compensation. The commission is to investigate the needs of education in the different industries of Indiana and to see how far these needs are met by existing institutions. It is to consider what new forms of educational effort are advisable. It is to investigate also, by means of printed reports and the testimony of experts, what has been done in other states and in foreign countries in similar educational work. Another feature of the commission's work is the holding of hearings in at least five different communities at which meetings the testimony of interested parties and experts is to be invited. The report of the commission is to be sent to the legislature not later than January 1, 1913.

OHIO.

Ohio passed two bills in 1911 in regard to teaching agriculture. The Cahill bill, taking effect the first of September, makes the teaching of agriculture mandatory in all the schools of the state, excepting in the cities. The second bill makes possible the efficient teaching of the subject by requiring that all teachers in these schools must, after September 1912, take an examination in agriculture.

NORTH DAKOTA.

In North Dakota three bills were passed which affect vocational education thru the emphasis placed upon the study of agriculture. It is but fitting that this subject should receive much attention in this food-producing state. One act of the three provides for the establishment of county agricultural and training schools and for their joint maintenance by the State and county wherein located, and for a levy of state tax to raise funds for the state share of this maintenance. The act creates for any county wishing to establish such a school a board of five members to be known as "The Board of Trustees" of the county agricultural and training school. The act creates also a state agricultural and training school board which shall consist of the president of the state agricultural college, the state superintendent of public instruction, and three practical farmers appointed by the governor. This board is to plan the course of study for these county schools, having the course include all branches of agriculture, manual training and domestic economy, instruction in the common branches, and in theory and practice of teaching. It is planned that the course in agriculture shall correlate with the courses in the state college of agriculture so that a student passing from the county school may find his proper place in the state college and receive due credits. Another act provides state aid for rural and graded schools with the provision that schools desiring aid must have courses in agriculture, manual training and domestic economy. The state appropriates for this purpose as follows: for state aid to state graded schools, \$6,000 annually; for state aid for state rural schools, \$6,000 annually; for additional aid to state consolidated school, \$3,000 annually. The third act makes possible the establishment of departments of agriculture, manual training and domestic economy in high schools, by means of special appropriations for the purpose. This aid amounts to \$2,500 plus the high school's proportionate share of the money appropriated by the national government for the teaching of agriculture in North Dakota. Certain provisions are included in the act, namely, that the schools must employ trained instructors in the special branches named; that the school must have connected with it a tract of land of at least ten acres available for agricultural purposes: that not more than five schools shall be aided the first year, nor more than five added to the list every two years thereafter. Rural schools may be associated with these high schools and so participate in this aid.

SOUTH AND WEST.

Texas is the only southern state which legislated for vocational education in 1911 and California the only western state. Texas has a new rural high school law which provides for the teaching of agriculture, manual training and domestic economy in certain schools with state aid for the same. The California legislature amended Section 1750 of the political code, permitting high schools to introduce courses in manual training, domestic science and art, agriculture, horticulture and dairying. The Commission of Industrial Education, Harris Weinstock, chairman, drafted and presented a bill for industrial education at the last legislature but it failed to pass, much to the regret of its enthusiastic supporters in California, who are anxious to see the state take steps to advance vocational education.

SOME STATE LAWS NOW IN FORCE.

Previous to 1911 there were nineteen states which had made laws providing for agricultural training and eleven for industrial and trade training. Twenty-nine states in all had legislated for some form of practical training and nineteen have no legislation in regard to education for practical activities. Twenty-three per cent of the states of the Union provide for definite industrial and trade training. This accounting does not include technical high schools or institutions above secondary grade. Of the eleven states which have provided for industrial and trade training, all have enacted their present provisions since 1902. The first commission for the study of the subject was not appointed till 1905. These statements from Bulletin number twelve of the National Society for the Promotion of Industrial Education will prove surprising, no doubt, to many who have considered the movement for vocational education of even more recent growth than it is. For purposes of comparison we give brief outlines of the legislation in the five of the eleven states which present all of the salient features of such legislation. These five are Massachusetts, New York, Connecticut, New Jersey and Wisconsin. Massachusetts provides for partial state support and control of industrial and trade schools, and for the establishment of these schools by either the state or the local community. New York also gives partial state support and control but the initiative in establishment of the schools is to be taken by the local community. A contrast is presented between Connecticut which provides for complete state support and control of such schools and Wisconsin which provides for complete local support and control. New Jersey combines the two by providing for complete local control with partial state support. In the latter state the local funds for support are to be raised by special means, and not by a tax levy or by apportionment of existing funds from taxes. In Massachusetts, again, the state supervises the school and approves the location, courses, methods and expenditures. In New York the state control is limited to approval only of the course of study by the state commissioner of education. In New York and Wisconsin, both, an advisory committee of men representing the industries taught is provided, and in Massachusetts one is customary tho not provided for by law. In Massachusetts and New York it is customary for the advisory committee to advise and counsel the school authorities, while in Wisconsin the committee does much more, for it prepares the course of study, employs or dismisses instructors, purchases equipment, purchases or rents grounds or buildings, all of which measures are subject to approval and ratification by the school board. In New York, Wisconsin, and New Jersey the trade schools are an integral part of the regular public school system but have separate schools, buildings, etc., excepting in New Jersey where it is not specified that the trade schools must be separated from others. In Massachusetts and Connecticut, on the other hand, these schools are entirely independent of the public school system of the community where they are located. Massachusetts and Connecticut provide for relations with industries by having all-day schools, part-time classes, and continuation classes. In the other states no provision is made for part-time or continuation classes. Ohio has legislation similar to that of New Jersey and Wisconsin in the important features; but Ohio has one measure which is unique, that relating to compulsory part-time work. Other states have clauses permitting part-time schooling for youths employed during the day, but

the Ohio law compels the child between fourteen and sixteen who has failed to reach certain academic standards to give a portion of his working period to after-training in day schools.

PROPOSED LEGISLATION.

That the National Government would legislate in favor of vocational education has been the hope of many friends of the work for some time. Many persons have been active in agitating the subject and in preparing bills for presentation to the national congress. As a result a bill was introduced into the Senate in January, 1910, by Mr. Dolliver, and into the House in February, 1910, by Mr. Davis, providing for national aid for furtherance of industrial education. This year in April, 1911, Mr. Page introduced a bill of the same nature into the Senate. The purpose of the bill is "To cooperate with the states in encouraging instruction in agriculture, the trades and industries, and home economics, in secondary schools; in maintaining instruction in these vocational subjects in state normal schools; in maintaining extension departments in state colleges of agriculture and mechanic arts; and to appropriate money and regulate its expenditure." According to the terms of the bill, \$5,000,000 is to be appropriated for maintenance of instruction in the trades and industries, home economics, and agriculture in public schools of secondary grade. For the maintenance of such instruction in state district agricultural schools of secondary grade \$4,000,000 is to be appropriated. It is proposed that branch agricultural experiment stations at the agricultural high schools be maintained and administered as parts of the state experiment stations now established, and for this purpose an appropriation of \$1,000,000 is to be made. A provision is made to maintain in each state college of agriculture and mechanic arts an extension department devoted to giving instruction in the subjects named to persons not resident at the college nor at the normal or secondary schools provided for by this act. An appropriation of \$5,000,000 is to be made for this purpose with the provision that ten thousand of this sum shall go to each of the forty-eight states and territories and twenty thousand to the office of experiment stations of the Department of Agriculture. Further provision is to be made for annually increasing sums in addition to the above if all other limitations are complied with and the added limitation that each state legislature must appropriate an amount equal to the allotment for that state from this added appropriation. A provision is included also for maintaining courses in the subjects outlined in the bill in state and territorial normal schools, the appropriation for which is to be \$1,000,000. There is full provision made for appropriations for expenses incurred in the Departments in carrying out this act. The appropriations are to be made annually beginning with the year ending June thirtieth, 1915.

It will be seen by the terms of this bill that four different kinds of schools will be benefitted; ordinary schools of secondary grade, state district agricultural schools of secondary grade, state colleges of agricultural and mechanic arts, and state and territorial normal schools. The state colleges of agriculture and mechanic arts are to be aided for extension work only. The public schools of secondary grade and the college extension work will receive the largest appropriations, \$5,000,000 each. Next in size of appropriations come the state district agricultural high schools with \$4,000,000. The experiment station work in these agricultural high schools and the normal schools will receive \$1,000,000.

ILLINOIS HELPS THE CAUSE.

In Illinois the legislature passed the following resolutions signifying its attitude on the movement for furtherance of vocational education. Such action by state legislatures should help materially in securing the passage of the national bills for industrial education now before Congress.

Resolved, by the House of Representatives of the State of Illinois, the Senate concurring therein, That the Congress of the United States be respectfully petitioned to appropriate annually to each State and Territory in the Union a sum equal to one dollar per head of the population of said State or Territory as ascertained by the last Census, for the purpose of establishing, maintaining and extending in the elementary and secondary schools of said States and Territories, while not excluding other elementary and secondary subjects, such practical, industrial and vocational training, including agriculture, the mechanic arts, domestic science, manual training, commercial subjects and such instruction in other similar subjects of a practical nature as the interests of the community may seem to demand, and

Resolved further, That our senators in Congress be instructed and our representatives be requested to use their best exertions to procure the passage of a law of Congress donating said sum to each State and Territory in the Union for said purpose; and

Resolved further, That the governor of this State is hereby requested to forward a copy of the foregoing resolutions to our senators and representatives in Congress and to the executives and legislatures of each of the other States and Territories, inviting them to cooperate with us in this meritorious enterprise.

LETTER FROM THE NATIONAL SOCIETY FOR THE PROMOTION OF INDUSTRIAL EDUCATION.

The Fifth Annual Convention of the National Society for the Promotion of Industrial Education will be held on November 2, 3, and 4 at Cincinnati. The conspicuous progress that this city has made along lines of industrial education points to it as being an especially desirable place for holding the annual meeting. The work of Dean Schneider in connection with the cooperative plan of the Department of Engineering in the University of Cincinnati, is better known in this country, perhaps, than any other single experiment in this field under American conditions. One year after the beginning of Dean Schneider's cooperative work for apprentices, the Board of Education of Cincinnati, in 1907, introduced a part-time system in connection with the High School. According to this plan, for two years general industrial training is given, after which the students are placed with employers on the wages of third year apprentices. Following a short period of probation, it is possible for the student, either to continue his connection with the industrial plant or to return to school and take up a different course. In case the boy remains at a trade, the school follows him for two years, giving him the supplementary training that is desirable in connection with his shopwork.

The industrial training connected with the High School plan for these last two years of instruction is given at night, and it was discovered that in order to obtain the best results for the younger apprentices, day schools would have to be

established. Accordingly, the Board of Education established a continuation school for machine apprentices in September, 1909, which is open forty-eight weeks during the year, eight hours a day on four and one-half days a week. This course extends thru four years and consists of one hour of blueprint reading, free-hand and mechanical drawing; one hour of practical mathematics; one hour of shop science and theory; and one hour of reading, English, spelling, commercial geography and civics. A fifth hour is devoted to study of industrial history and discussion of civic and labor questions. This continuation school in Cincinnati is the nearest approach in the United States to the form of industrial education developed to such a high degree of efficiency in Munich, Bavaria. In addition to the forms of industrial education above described, Cincinnati has a night school of the highest grade in the Ohio Mechanics' Institute, of which John L. Shearer is the president. All of these schools will be open to visitors during the convention, at which time opportunity will be given for visitation and study of the various plans.

Frederick A. Geier, Vice-President of the National Society for the Promotion of Industrial Education, will serve as chairman of the local committee and he has already been assured cordial support on the part of educators and business men in the city of Cincinnati and the State of Ohio in making the convention a success from every standpoint.

The program will consist of five sessions, with a banquet on Thursday evening, November 2nd. The first session of the convention on Thursday afternoon will be given over to a discussion of Cincinnati's experience in industrial education, at which time the four schools mentioned above will be fully described by speakers acquainted at first hand with their work and aims. The speakers at the Banquet will speak on the question, "How Shall the Obligation to Provide Industrial Education be Met?" considering it from the standpoint of the community, the State, the Nation, the employer and the employee.

Recent emphasis on the necessity for day-time supplementary instruction for the young recruits of the industrial army has made it desirable to have a clear discussion of the place of day continuation schools and evening schools respectively. With this end in view, the Friday morning session will be devoted to the topic, "The Distinctive Functions of the Main Types of Continuation Schools in the United States." This session will be held in the Ohio Mechanics' Institute and will be followed by luncheon in the Institute building. The topic for the afternoon session on Friday is "Supplemental Education for Automatic Workers;" that for Friday evening, "Industrial Education Necessary to the Economic Future of the United States," and that for Saturday morning, "Should Trade Schools for Youth Above Sixteen Years of Age be Provided at Public Expense?"

A considerable number of speakers on the subjects for discussion have already been secured and everything points to a most profitable and interesting annual meeting. Advance programs of the convention will be available after October 1st, and any one desiring copies may write to the secretary of the Society.

In July, the Society issued Bulletin number fourteen, entitled "The Trade Continuation Schools of Munich." This bulletin is composed in part of a lecture on the general subject indicated by the title of the bulletin, delivered by Dr. George Kerschensteiner, Director of Education, Munich, Bavaria, before the United Engineering Societies, New York City, on December 8th, 1910, during his visit

to this country under the auspices of the National Society for the Promotion of Industrial Education. Following this lecture is given a complete list of the Grade Continuation Schools of Munich, and this is followed by a translation of the courses of study of five of the schools as given in the official report for 1910. The English reader will find a great deal to interest him in these curricula, where the thoroughness characteristic of German education is manifest in every line. A typical course of study includes religious instruction, business composition and reading, trade arithmetic and bookkeeping, hygiene and civics, trade drawing, and practical instruction in materials and tools. Where necessary, variations are introduced, such as a study of foreign languages in connection with the course for typesetters' apprentices, and physics, electrotechnique and descriptive engineering in the trade school for machinists and instrument and gun makers. Nothing short of actual perusal of the courses of study can acquaint one with the care with which the school instruction has been correlated with the needs of the apprentice in his trade work, and with the vast amount of cultural material that has been introduced in connection with the mechanical pursuit. The book is illustrated with seven half-tone cuts of continuation school buildings and inside views of class work. Copies of this bulletin may be had upon application to the secretary.

An important change in the work of the Society is contemplated, beginning with September 1st. After that date, the secretary will give full time to the interests of the Society, devoting his attention in large part to field work. The general plan of spreading a propaganda by means of printed material will be supplemented thru the activities of a field secretary, who will take to specific communities "the gospel of industrial education" and remain in them until his message has had a hearing. It is hoped by this means to get under way in many important industrial centers in this country such plans for industrial training as will be best suited to local conditions.

EDWARD H. REISNER, Secretary,
20 West 44th Street, New York.

VOCATIONAL TRAINING IN CHICAGO.

Chicago has added to her number of schools for vocational education a new trade school for girls known as the "Lucy L. Flower School of Mechanic Arts." The school has one four-year course and several two-year courses. The subjects to be studied and certain regulations for admission are given below as copied from proceedings of the board of education.

(A) A four-year course, embracing:

1. General household science (including cooking, laundry work, house sanitation and management and household accounts); intensified training to be given to those who wish to become institutional workers, managers of kitchens and lunchrooms, invalid and diet workers, and emergency workers.

2. Household Arts (including plain sewing, dressmaking, millinery, embroidery, lace making, infants' and children's clothing, care of hospital and hotel linen, and interior decorations); intensified training to be given to those who wish to fit themselves for supervising and for special work; machines run by electricity and foot power to be used.

3. Science (including chemistry and biology, taught with a view to understanding and experience and needs of daily life, as well as with the idea of gaining an insight into scientific method and theory).

4. Art, with specialized work in costume, millinery, and embroidery designing.

5. English, both utilitarian and cultural.

6. Applied mathematics.

7. Geography, history, and civics, with special reference to the needs of women in Chicago.

8. Physical education and physiology, with the idea of improving health and of giving recreation and training in social requirements.

9. Music as a recreative and cultural study.

(B) A two-year course, coinciding in part with the four-year course, but shaped to fit students for industrial employment by the end of the second year.

Courses in salesmanship, typesetting, boxmaking, and other industries to be organized as needed.

The school will contain a fully equipped lunch room.

The superintendent further recommends that authority be given to admit to the school a limited number of girls who need training for immediate self-support, and who are now in the fourth, fifth, sixth, and seventh grades of the elementary schools:—half-year, whole year, and year and a half courses to be organized for these girls, consisting chiefly of cooking, needlework, and machine sewing, with other trade work as required and with instruction in English, arithmetic and other academic subjects.

The superintendent further recommends that no girl be admitted from the fourth and fifth grades who is less than fourteen years of age, and no girl from the sixth and seventh grades who is less than fifteen years of age, and that admission from the fourth, fifth, sixth, and seventh grades be determined on the basis of examination to be held on June 28, 1911.

This school for girls supplies the only apparent deficiency in Chicago's comprehensive system of education for vocational training. The public schools have industrial work in elementary grades, technical high schools, the new school outlined above, a school for carpenters' apprentices, and industrial work in evening schools. There are schools maintained by employers such as the school of the Western Electric Company, and the school of the Northwestern Railway shops. Then there are cooperative part-time arrangements with various schools, the Lewis Institute for example. The school for painters' apprentices is maintained by employees in the painters union. Chicago has also private trade schools, the Coyne Trade School being an example.

The high schools of Chicago present unusually fine opportunities for vocational study, having four-year and two-year vocational courses. This does not mean merely that a student may elect a vocational subject for four successive years as a part of some other course, but that there are specially made courses in which a vocation is taken as a center and around it are grouped all subjects allied to it. Of these specially prepared vocational courses, there are four-year courses named business, builders, household arts, arts, and architectural. There are two-year special courses in accounting, stenography, mechanical drawing, design, advanced carpentry, pattern-making, machine-shop work, electricity, household arts and printing.

VOCATIONAL EDUCATION.

Statistics from the evening classes maintained as part of the public school system show that the opportunities presented are fully appreciated.

NUMBER ENROLLED IN CLASSES IN HOUSEHOLD SCIENCE, IN COMMERCIAL SUBJECTS,
AND IN SUBJECTS RELATING TO THE INDUSTRIES—IN EVENING SCHOOLS.

Sewing	918	
Cooking	1018	
Home Millinery	121	
	—	2057
Bookkeeping	1190	
Stenography and Typewriting	1569	
Special Business Course (English, Penmanship, etc.)	213	
	—	2972
Practical Millinery	155	
Woodworking and Manual Training	1268	
Patternmaking	40	
Machine Shop	404	
Foundry	52	
Forge	136	
Mechanical Drawing	938	
Freehand Drawing	89	
Electricity, practical and elementary	481	
Chemistry	115	
	—	3678
Total Household, Commercial and Industrial Subjects.....		8707

NUMBER ENROLLED IN CLASSES FOR STUDY OF ACADEMIC SUBJECTS, ELEMENTARY AND
HIGH.

English (for foreigners).....	12715	
Elementary grade work	3229	
High school subjects	993	
Physical Training (gymnasium, etc.)	883	
	—	17820
Grand Total (less 535 counted twice).....		25992

VOCATIONAL GUIDANCE AT HARVARD.

The course in Vocational Guidance in the Harvard Summer School, conducted by Meyer Bloomfield, Director of the Vocational Bureau of Boston, attracted the full quota permitted by the University. Slightly more than half of the fifty attending this course were men. The states largely represented in the attendance were Massachusetts, Michigan, Ohio, New York, Pennsylvania, Nebraska, Indiana and Wisconsin. All but four or five were holders of college degrees, such as B. A., B. S., M. A., M. S., and Ph. D. Nineteen different colleges, universities and other training schools were represented. The others were practical working men, such as machinists, yacht joiners, etc., who have become industrial school teachers.

Among the occupations represented in this course were principals and superintendents of schools, church workers in Catholic and Protestant organizations, settlement workers, heads of manual training or vocational schools and departments, and workers in public and private organized charities. Some of the students were sent on by their communities to study vocational guidance in order to organize similar work.

COOPERATIVE PLAN IN COLUMBUS, OHIO.

The Columbus Trades School of Columbus, Ohio, will begin the cooperative plan of instruction this fall. Local manufacturers held a conference June 16th in regard to the work of the trade school. They endorsed the work in a general way and expressed a deep interest in it. They agreed to cooperate in any way that they could and showed a great deal of interest in the new cooperative plan. The director of the trade school, J. G. Gill, was instructed to prepare a detailed outline of the plan and an apprentice contract to submit to a later meeting.

In general, the conditions proposed at this meeting were that the boys at the completion of the eighth grade in the public schools might enter the Trade School for one year of preparatory work consisting of general shopwork, drawing, and arithmetic. At the end of the preparatory work they were to select the trade they were interested in and enter a course which will combine class instruction in the Trade School with shopwork in one of the commercial shops of the city, alternate weeks in each. The boys are to receive wages for the time they are in the shops. The scale suggested was 10 cents per hour the first year, 11 cents the second and 12½ cents the third. After finishing the three years of cooperative work they are to have one year of continuous work in the shop for which they will receive 14 cents the first six months and 15 cents the second six months. At the end of the apprentice term the boy is to receive a bonus of one hundred dollars. The feeling expressed at this meeting was that it would be better to put a premium on the satisfactory completion of the term rather than a penalty for failure to do so.

Coupled with this work will be a systematic effort to get the boy into the work he seems best fitted for: In other words "vocational guidance."

The Board of Education voted an appropriation for a machine-shop equipment and instructed the Sites Committee to look up a suitable site for a new building for the Trade School.

The boys of the printing department of the Columbus School of Trades have printed a Style Book which is very attractively gotten up both in subject matter and arrangement. It is a fine production when the fact is considered that it was done by second year boys. Paul C. Carty is instructor of the department of printing.

THE UNIVERSITY ATTITUDE.

What the general attitude of the universities toward vocational education is and will be cannot be stated with certainty as yet, but the attitude of the University of Chicago is evident in an article in "Science" of June 23d on "New Requirements for Entrance and Graduation," by J. R. Angel. After speaking of various requests from students for subjects not found in the curricula, he says:

"The character of these requests made it clear that to some extent at least the curricula of the university were not meeting the reasonable needs of students, nor contributing in the most effective way to their education. Too little opportunity was afforded to meet the demands of training for special careers lying outside the usual form of business and the learned professions. Especially was this maladaptation recognized in the case of women students for whom it seemed at times desirable to devise special courses of study designed to fit them for particular lines of work." To meet the need suggested, some alterations were made in requirements for admission and plans made for more varied curricula.

In this connection Mr. Angel says, "The first two years of the college course are designed to articulate in the most intimate way with the high school course, and to assure certain results by the end of the second year of college residence, such as may enable the student at, or before that time, to enter with the greatest advantage upon professional specialization of one kind or another, and to make certain that each student whether consciously aiming at a particular vocation or not, shall before graduation have acquired a reasonable mastery of one or more fields of knowledge. * * * A large number of alternative sequences will be worked out designed to meet in the most effective way a variety of student needs. Students contemplating a professional career in law or medicine will have sequences offered to them prepared with special reference to these professions. The same thing will be done for students whose needs are of a different character. It is also contemplated that any student who is able to present to his dean at an early stage in his college work sequences of an educationally defensible kind, other than those prepared by the faculty, may, upon securing permission from the college board be allowed to pursue such courses. It is hoped that in this way adequate provision may be made for the larger vocational interests represented by college students of serious purpose and well matured plans. An inspection of the provisions will at once make clear that the conception of vocational training is broad and catholic, and not in any way to be identified with the occasionally narrow and shallow training afforded by so-called vocational schools.

VOCATIONAL EDUCATION IN DENVER.

Denver, Colorado, opens a trade school this month known as the Denver School of Trades. Instruction is offered in carpentry and cabinet-making, printing and bookbinding, painting and interior decoration, plumbing and gas-fitting. Trade drafting, history, mathematics, English, and science are included in the courses. Half of the time of each day is given to shopwork, and the remaining time is divided between drafting and academic subjects. The school is open to boys of Denver of sixteen years or over, who have completed eight grades or the equivalent of such schooling. The enrolment is limited to two hundred the first year.

The establishment of the school met with approval from the trades unions and the American Federation of Labor. W. C. Borst is principal of the school.

Denver also opened a Technical High School in the Longfellow school building. The manual training equipment formerly in the Longfellow school has been transferred to the North Side High School, where new and extensive shops have

been built. First year work only is being given this year in the technical high school. It is planned that as each of the classes now enrolled in the manual training high school graduates, another year's work will be added to the course. Only students of the North Side High School began first year work in manual training this year. In this way the technical high school will in time take the place of the manual training high school. Its course will extend over four years. The first two years will cover as much ground in manual training as was formerly covered in four years. At the beginning of the third year the student will select some one subject in which to specialize, and will then devote the larger share of his time to that subject. As now planned the subjects for specializing are carpentry, cabinet-making, pattern-making, forge work, machine-shop work, architecture, dressmaking, millinery, and catering. It is the aim of the board of education to graduate specialists from the several departments of the school. In this respect the school follows the plan of the Cleveland technical high school.

The establishment of the technical high school in Denver is in answer to the demand from many sources for a more practical, vocational course of study. The enrolment of high schools in general in the last ten years is said to have increased fifty per cent., but the increase in enrolment in manual training high schools has been ninety per cent., which is a further evidence of the growing public demand for industrial schools. Many of the manual training schools, however, have not quite met the demand because they have not prepared their students for immediate wage earning on graduation. This defect the technical high school hopes to remedy.

RANKEN SCHOOL GETS A NEW BUILDING.

A new building for the use of the David Ranken Junior School of Mechanical Trades at St. Louis, Missouri, will be opened in September. The building will cost \$200,000, and will be two hundred and twenty-five feet long, one hundred and twenty-five feet wide, and three stories high. It will be used for administration offices, shops and a new gymnasium. When the new building is completed it is planned that boys of fourteen will be admitted as well as boys of fifteen and over. The course of study will be lengthened to three years, and the machine and electrical trades will be added to the list of trades taught, which now includes plumbing, painting, carpentry, bricklaying, pattern-making, and steam engineering.

The second annual exhibit and closing exercises were held July 21st. At this time eighteen students were graduated, the first since the establishment of the school in September 1909. Several of the boys already have positions. A visiting plumber from Dallas, Texas, after he had inspected the work of the school, immediately hired one of the members of the plumbing class as six dollars a day. Another graduate plumber has been hired by a local plumbing concern to make drawings for several important contracts. These facts show that this school produces results, and results are the strongest argument in favor of trade schools.

Two new instructors will be added to the teaching force in September. W. H. Hefelfinger, a graduate of the Williamson Free School of Trades, and for two years instructor in bricklaying at Stout Institute, will have charge of the brick-laying department. David E. Scull, of the North Dakota Agricultural College, will teach applied science and mathematics.

TRAINING FOR SALESMANSHIP AND TRADE TEACHING.

Simmons College and the Women's Educational and Industrial Union of Boston are sending out an interesting announcement of a one-year course for training "Teachers of Salesmanship and Trade School Teachers." The announcement of the course, which will open in September, 1911, comes in answer to an increasing demand from school authorities for teachers who understand something of trade conditions and who can teach sewing and cooking not alone as preparation for home making, but as preparation for earning a livelihood. The course is planned to give an insight into practical trade problems and the Women's Educational and Industrial Union is particularly well equipped to offer such a course in cooperation with an institution like Simmons College.

For those who are preparing for trade school teaching the Union will offer an opportunity for business practice in its three trade shops, one in dressmaking, one in millinery, and one in the making of children's garments. This practice at the Union will be supplemented by observation and practice in other shops conducting similar lines of business. Those who are preparing to teach salesmanship will take their course in the Union's School of Salesmanship, supplemented by practice in the stores. In both courses, opportunity will be given for observation in trade schools and for practice teaching. All of the laboratory practice will be carried on at the Women's Educational and Industrial Union, and courses in economics, as applied to the industry, industrial teaching, and business accounts will be given at Simmons College. The course is planned primarily for women of sufficient maturity and previous training to give assurance of success in this new field of vocational teaching.

The need for those who can be leaders in the trade school movement is very great and the Women's Educational and Industrial Union and Simmons College will make a valuable contribution to the progress of vocational schools for girls by offering this practical course for training teachers.

THE INDUSTRIAL SCHOOL AT SAGINAW, W. S., MICHIGAN.

The aim of the Arthur Hill Industrial School, now under construction in the city of Saginaw, W. S., Michigan, is as follows: 1. To prepare youth of both sexes for a definite vocation and efficient industrial citizenship. 2. To give boys between the ages of fourteen and sixteen an opportunity to learn the elements of trade, and to increase their earning capacity; a training which they could not hope to acquire if they started to work as unskilled apprentices. 3. To help men and women already engaged in a vocation to better their condition by increasing their technical knowledge and skill.

Pupils who have graduated from an elementary school of eight grades are admitted; pupils who have not graduated may be admitted under certain conditions, if they are fourteen years old. Those boys who know definitely just what trade they want to follow, are permitted to start at that work, and to devote most of their time to it. Those boys who have not decided on any special work are permitted and required to take several lines of trade work. The instructors can then advise the boys intelligently and guide them to a wise choice. All the instruction is individual, altho the boys work in groups. There are no regular

classes, as the term is ordinarily used. Each boy is a unit, and he progresses as rapidly as his ability will permit.

In addition to the trade work all students are required to take trade drawing, together with the non-vocational subjects, to which they devote about one-quarter of their time. The following courses are offered, if in the discretion of the Board the number of pupils desiring to follow such courses, are sufficient: Woodwork, including house carpentry and construction, cabinet-making and bench-work, wood-turning, pattern-making, use of wood milling machinery; metalwork, including general machine-shop practice, sheet-metalwork, forging, plumbing, electric wiring and installation; book-making, including printing, composition, press work, engraving, electrotyping, bookbinding; painting and decorating; bricklaying; plastering; cement work; machine sewing; dressmaking; millinery; novelty work using paste and glue; and drawing of various kinds. In addition to these are trade mathematics, English of all kinds, and industrial history, including civics, industrial and commercial geography, applied physics and chemistry, simple bookkeeping and elements of commercial law.

This curriculum provides a good English education and relates this education to a special interest in life. The teachers are all experts in their respective lines. The trades are to be taught by experienced mechanics. Everything will be done to make the school conditions prepare boys and girls for actual industrial life.

The Arthur Hill Industrial School also prepares officers for the merchant marine in its nautical branch or "Marine School," a department of the school for "the instruction of youth in navigation, seamanship, marine engineering and all matters pertaining to the proper construction, equipment and sailing of vessels, or any particular branch thereof."

The course offered is two to four years, according to age and previous preparation.

The Secretary of the Navy has already been asked by Governor Osborn to send a suitable vessel of the navy with all her apparel, charts, books and instruments of navigation to Saginaw as soon as this department of the school is in operation.

SCHOOL HOURS EXTENDED AT RINDGE TECHNICAL SCHOOL.

The Rindge Manual Training School of Cambridge, Massachusetts, has changed the character of its course so that a change of name was necessary to express the real scope of the school. It will now be known as the Rindge Technical School. The commercial course will be abandoned and the work will be made entirely industrial and technical. Only one entirely new department will be added, that of printing. For this a shop has been equipped to accommodate twenty boys, only such equipment being made as is necessary for one year's work. The equipment will be added to each year until a four year's course is in operation. C. C. Jones, Jr., of Harvard College printing office will direct the printing department. The boys who have elected printing have done so on the so-called trade basis, remaining in school every day from eight-thirty in the morning to five in the afternoon.

All departments of the school will be so modified as to make them industrial in character. A new departure will be the use of the school during the coming year

as a laboratory by the Harvard Graduate School of Business Administration, which will teach the Taylor System of business management. The school, therefore, will be organized under the direction of experts in the Taylor System. The first changes will be made in the tool and stock rooms, later extending to the method of shop instruction.

Another interesting feature is the plan for admitting boys who have reached the age of fourteen but who have not graduated from the grammar school.

Science work will be emphasized strongly in connection with all the courses, as it is the opinion of the management and of the director, John W. Wood, Jr., that science and industry are so closely linked together that a boy must understand science in order to place himself properly in industrial work.

BRADLEY INSTITUTE GETS AN AUTOMOBILE FACTORY.

The trustees of Bradley Polytechnic Institute have recently turned over for the use of the Institute the group of factory buildings formerly leased from the Bradley estate by The Bartholomew Co. and used for the manufacture of the Glide automobiles. The group consists of three buildings—one 250 by 45 ft., two stories high, one that is approximately 230 by 40 ft., a part of which is three stories high, and another small building. It also includes the factory power plant which will be used for a small power laboratory. The total floor space in the factory buildings is 43,400 square feet. The trustees have appropriated \$20,000 for remodeling the buildings which will be ready for occupancy by the opening of the school year. These additional buildings will make possible the extension of the work of the Manual Arts Department to include vocational courses in wood-working, machine construction, drafting, and probably in electrical construction, printing and cement construction. Already a course for training machine draftsmen has been formulated and adopted. A feature of the vocational work will be a productive factory where students who have passed thru the elementary shop courses may be given instruction under real factory conditions. The factory will also be utilized extensively in training teachers for positions in vocational schools and manual training high schools.

NATIONAL CONFERENCE IN ENGLAND HONORED.

Messages from King George, Mr. Asquith, and Mr. Balfour were read at the English National Conference on industrial education held in London in March. These messages were in reply to letters from the Lord Mayor, Sir Vezey Strong, the presiding officer of the conference, who considered the subject of such vital importance as to command consideration from the government. That his belief was justified is shown by the replies received which we quote. Sir Arthur Bigge, speaking for the King, said:

"I am commanded by the King to convey to you an expression of his sympathy with the objects which your conference desires to secure. His Majesty believes that further developments of industrial training will be of inestimable benefit for the nation, and he hopes that your conference may have the effect of stimulating and educating public opinion in favour of this branch of education."

Mr. Asquith's reply was as follows:

"I believe this question to be one of the highest importance to the national

wellbeing, and I should welcome any suggestion that would lead to its solution."

The message from Mr. Balfour said:

"I desire to express my great sympathy with the movement. A very great deal has been done to organise the machinery of education throughout the country. The expenditure it involves is great and sometimes lavish. Whether we always direct it in precisely the right direction is another question, and I do not think that anyone who has watched educational and industrial progress at home and abroad can be without some misgivings on the point. I am certain that the interchange of opinion which the conference will produce will be of the utmost value to the educational and social welfare of the country."

One of the most important actions of the conference was the passing of a resolution moved by Lord Brassey, viewing "with grave concern the large number of children annually leaving school without practical training for definite vocations," and recommending the establishment of "a national system of industrial, professional and commercial training to which the children shall pass as a matter of course (unless the parents are prepared to undertake their future training) and without interval, for a definite period, to be thoroly trained for entry to the particular calling for which they are best fitted;"—the cost of maintaining such a system to be borne by the state.

The conference also resolved to form a National Industrial Education League.

INTERESTING STATISTICS FROM WILLIAMSON FREE SCHOOL OF MECHANICAL TRADES.

Reports of the occupations and progress of graduates have been prepared by the Williamson Free School of Mechanical Trades of Pennsylvania. One report is from the class of 1910, which has fifty-one members. All but three are working at the trade learned in the school, two of whom are working at mechanical drawing. Only one reports not liking his trade. The average wage per week is \$16.60. The highest paid trade represented is bricklaying at \$20.64 for a weekly average. The trades represented in this class were bricklayers, carpenters, operating steam and electrical engineers, machinists, and pattern-makers. The report which covers the years from 1905 to 1910 is of even greater interest, giving as it does conclusive proof of the efficiency of school instruction in trades. From 1905 to November 1, 1909, two hundred and sixty-eight young men had graduated from this school. Two had died. Of the two hundred sixty-six, two hundred and forty-four were at work at mechanical trades as journeymen, foremen, superintendents or contractors; five were at college, four having worked at their trades before going to college; fifteen were engaged in commercial pursuits; two supplied no information. Of those employed at the mechanical trades, the lowest wage received was \$3.10 a day, the highest average wage was \$4.64 a day.

REVIEWS

The Vocational Guidance of Youth. By Meyer Bloomfield. Houghton Mifflin Company, the Riverside Press, Cambridge, 1911; 4¾ x 7⅛ in.; pp. 124; Riverside Educational Monographs series, price 35 cents.

From the beginning of time there have been parents and teachers who have sought to give such help as they were able to young people to choose their life-work, and many of these volunteer advisers have followed up the subsequent careers with a permanent interest. A remarkable awakening along these lines is just now crystallizing into an organized movement for vocational guidance, which is enlisting the cooperation of parents, teachers, and employers in increasing numbers. One of the immediate needs is a fund of information and suggestion of methods for the guidance of those who are to do the guiding, and this is precisely the service rendered by this little book.

The opening chapters deal with "The Choice of a Life-Work and Its Difficulties," "Vocational Chaos and Some of Its Consequences." Chapter III, on "Beginnings in Vocational Guidance," contains an outline of the plan which has been worked out for the Vocation Bureau in Boston, together with the preliminary steps that led to the adoption of the plan. "Three aims have stood out above all others: first, to secure thoughtful consideration, on the part of parents, pupils, and teachers of the importance of a life-career motive; second, to assist in every way possible in placing pupils in some remunerative work on leaving school; and third, to keep in touch with and help them thereafter, suggesting means of improvement and watching the advancement of those who need aid." The plan in use by the Boston Home and School Association is described also, and notes are given on typical employments showing the kind of data collected in the study of the industries.

The next two chapters discuss "Vocational Guidance in the Public Schools," and "The Vocational Counselor." "The first suggestion to those about to open a city or school vocation bureau is—go slowly. . . . It may happen that the differences of viewpoint are almost irreconcilable, one party aiming for the short haul of immediate results, and another for the long haul of social and educational readjustment."

Chapter VI offers "Some Cautions in Vocational Guidance." "School work inspired by the 'Life-motive' is the ideal of the progressive educator. . . . The vocational decision, when made, should represent chiefly the conclusion reached by the boy or girl, young man or woman, or whoever the individual may be. Decision is not the business of the counselor. . . . To sum up the principal dangers which the movement may encounter, attention is directed against forcing children into premature seriousness, wholesale counseling, too little personal relationship, absence of research work, superficial suggestion, vocational bias, job-finding instead of constructive social service, exploitation, pretentiousness, and inferior equipment of the executive and the bureau."

The concluding chapter discusses "Social and Economic Gains Thru Vocational Guidance," and is followed by several pages of helpful references.

The book deserves, and will receive, a careful reading on the part of a wide circle of men and women of many callings who are interested in this most vital problem.

—WILLIAM T. BAWDEN, University of Illinois.

The Making of a Trade School. Mary Schenck Woolman. Whitcomb and Barrows, 1910; pp. 101; price, 50 cents.

This attractively bound little book should be in the hands of every committee that contemplates establishing a girls' trade school, for it is a description of the Manhattan Trade School, the first school of the kind established in America for girls fourteen years of age. The subject matter of the book falls under four heads: (1) organization and work; (2) representative problems; (3) equipment and support; (4) outlines and accounts. It would be hard to say which of these chapters would be of most value, for indeed not an unnecessary word is found from cover to cover, the style being clear but condensed. The immediate purpose of the school when it was organized in 1902, "was to train the youngest and poorest wage earners to be self-supporting as quickly as possible. The school aimed to find a way to improve the worker physically, morally and financially; to better the conditions of labor in the work rooms; to raise the character of the industries and the conditions of the homes; and to show that such education could be practically undertaken by public instruction." Some of the topics in the first part, industrial intelligence, health, trade orders, placement bureau, student aid, will indicate at once that the subject has been viewed from all sides. The data given and the statements made are the result of experience and of painstaking investigation, and are in no way theoretical. In the valuable chapters on "Equipment and Support," and "Outlines and Accounts," exact figures are given from which estimates for new schools could be made.

Practical to a degree tho the book is, a reading between the lines shows that the organizers and directors of the school have from the first made a sympathetic, understanding study of the girls themselves, their needs, their poverty, their dangers and their possibilities. Back of the information and details so concisely summarized in this book, are years of patient, unselfish effort. It is a book of as great interest to the student of social service as to the director of vocational education.

—V. E. WITHEY.

Tenth Annual Report of the Director of Education for the Philippine Islands, July 1, 1909, to June 30, 1910. Manila Bureau of Printing.

This report of one hundred pages is much more than a collection of statistics. It represents striking evidence of what a national government can do in a few years to lift a tropical people from a state of ignorance and indifference to a condition of wonderful commercial and educational activity. Several sections of the report are devoted to industrial education, stating the problem and the manner of its solution in the Islands. A reading of this part of the report shows that industrial work in the Philippines is far better organized, more practical, and more productive of results than the systems of many of the states of the United States. The report is illustrated with over thirty interesting pictures of schools and industrial work.

RECEIVED

Three Lectures on Vocational Training. By Dr. Georg Kerschensteiner, director of education in Munich. Three notable lectures delivered in America under the auspices of the National Society for the Promotion of Industrial Education, published by the Commercial Club of Chicago, 1911. The first is on "The Fundamental Principles of Continuation Schools," the second on "The Organization of the Continuation School in Munich," and the third on "The Technical Day Trade Schools in Germany."

The Trade Continuation Schools of Munich. Bulletin No. 14 of the National Society for the Promotion of Industrial Education. A lecture by Dr. Georg Kerschensteiner and a translation of curricula from selected schools.

Proceedings of Sixteenth Annual Convention of the National Association of Manufacturers. George S. Boudinot, Secretary, 30 Church Street, New York City. This contains an extensive report of the committee on industrial education with discussions of the report occupying some twenty-one pages. The address of the president of the association, John Kirby, Jr., includes a discussion of industrial education with especial reference to its connection with organized labor.

Schools of Agricultural, Mechanic Arts, and Home-making, New York Education Department Bulletin. Explains the 1910 Education law in its connection with this kind of schools, and gives a brief description of typical schools. A valuable list of Books on Agriculture and Related Subjects is added.

Vocational Education. Published by the Vocational Schools of Buffalo, New York. The excellent work on this first issue of a local periodical which has taken the same name as our own was done by the boys of the Broadway and Seneca Schools of Printing of Buffalo. It contains the following articles: "The Cultural versus the Industrial Element in Education," by superintendent Emerson, "Education for Wasted Years," by Arthur D. Dean, and a paper on "Industrial Education," by Francis H. Wing, director of Industrial Training in Buffalo. The price of the magazine is 15 cents a copy.

Special Report of the Commissioner of Public Schools of Rhode Island Relating to Industrial Education. Contains an outline of Industrial Education in the United States and foreign countries, brief history of the subject by Arthur J. Jones of the Rhode Island Normal School, and recommendations for the work in Rhode Island.

Industrial and Agricultural Training. Advanced sheets of the report of the commission appointed by the legislature of the State of Wisconsin to report on plans for the extension of industrial and agricultural education.

State Trade School of Bridgeport, Connecticut. An illustrated circular prepared by the printing department of the school.

VOCATIONAL EDUCATION

NOVEMBER, 1911

ORGANIZATION OF THE INDUSTRIAL CONTINUATION SCHOOLS OF CREFELD.

EDWIN G. COOLEY.

THE city of Crefeld in the Rhine Province has a population of 110,000 inhabitants. It is a prominent manufacturing center, and is well supplied with industrial schools. Besides the usual elementary and secondary schools, it has an Industrial Art School, a Royal Weaving School, a Royal Dyeing School, and a well organized system of industrial continuation schools. In the following sketch I have tried to show what Crefeld is doing to care for its boys between the ages of fourteen and eighteen, who are compelled to leave school and enter the industries. I have tried, too, to show how the good people of Crefeld, while providing industrial education for their boys, have given careful attention to their physical, social and moral education.

AIM OF THE SCHOOL.

The industrial continuation school tries to equip young working men to meet the demands of the present economic life, as well as to furnish them general instruction during the important years—between fourteen and eighteen. The problem of these schools is difficult in that the youth must be considered first, as an individual; second, as a member of a trade; and third, as a citizen of the state. The school tries to harmonize these points of view so as to make good men, efficient workers, and good citizens.

The industrial continuation school applies the lever at the point of the boy's greatest interest, his chosen vocation, turning to use the eager expectation and joyous ardor with which at fourteen he enters into industrial life. The ever changing demands of modern life with the corresponding changes in methods of production make the master's shop the best place to learn the practical side of a trade. The industrial continuation school has, however, provided school work-shops for some of the trades, not with the idea of replacing the master's instruction, but of supplementing it logically under technical leadership, thus making it possible to turn out a better all-round workman.

At this time in a boy's life, he naturally demands the "how" and "why" of everything he sees and does. In the workshop of the master there is no time for this theoretical instruction which is absolutely necessary if the boy is to become a thoughtful worker and not a mere machine. In the master's workshop the economic struggle claims all the powers of the worker, and demands every minute for productive work. The industrial continuation school, therefore, tries to give this information in the school workshops in immediate connection with practical work. It seeks to unite technical and economic knowledge with the practical ability *to do*.

The theoretical instruction of the industrial continuation school must provide for:

- (A) The purely technical side in:
 - 1. Industrial science.
 - 2. Technical drawing.
 - 3. Technical mathematics.
- (B) The business or economic side in:
 - 1. Bookkeeping.
 - 2. Calculations of cost of production.
 - 3. Business correspondence.

TECHNICAL ASPECTS OF THE WORK.

(1) Industrial Science teaches the pupil the origin, qualities, peculiarities, value, methods of preservation, and application of all materials and supplies; the construction, methods of use, manufacture and mechanical laws of working tools, implements and machinery; the aims of labor, division of labor, and the resulting demands upon the workman.

(2) Technical drawing trains the eye and hand to represent ideas graphically, and gives the power to read intelligently from drawings the plans of others.

(3) Technical mathematics does not stand detached from the other subjects of instruction, but is, in reality, a mathematical way of looking at industrial science. It applies the skill in reckoning gained in the elementary school to the numerous problems of vocational life.

BUSINESS OR ECONOMIC ASPECTS.

(1) Calculations of cost of production, as presented in technical mathematics, furnish a foundation upon which a fair price can be calculated, taking into consideration materials and trimmings, wages, the general cost of running the business and a reasonable profit. The examples furnished by the study of industrial science and technical drawing deepen the student's insight in the elements to be considered in fixing a reasonable price for products.

(2) The instruction in bookkeeping is simple, but shows the boy the value of a systematic setting down of the incidents of business. Even the so-called laborer learns a practical system of keeping his household accounts which trains him to book his income and outgo, and to keep them balanced.

(3) The instruction in business correspondence teaches the pupil systematic composition, the neat setting down of business letters, petitions to authorities, documents of all sorts, and the usual filling out of business forms.

TRAINING FOR CITIZENSHIP.

The industrial continuation schools must do more than train a mere workman. The apprentice will later be a citizen with duties and rights. If he is to perform his duties and to assert his rights, he must know them, not only in a general way, but in the spirit in which they originated. The school must, therefore, teach the young citizen the organization of the state and community, and his relations to them both as a citizen in general and as a person carrying on a trade. It will make a special effort to familiarize him with the idea that order is the only possible foundation of general welfare, and that the weal or woe of individuals or of classes is dependent upon that of the whole community; that improvements in the conditions of the individual must be brought about without burdening the whole community. It must train the pupils to submit to law and authority, and to subordinate himself in an organization for the purpose of reaching a common aim.

Training for citizenship is closely connected with training for morality and virtue. Many opportunities offer themselves to the genuine teacher of awakening the feeling of the young man for what is good and noble in his relations to others, to the family, to master and customer, to employer and inferior, to the poor and the weak, to friend and enemy. Examples and habit work effectually upon the pupil to transform the right feeling into the right deed in order that he may fulfil in himself the words of the poet:—"Let man be noble, helpful and good."

BOARD OF DIRECTORS OF THE INDUSTRIAL CONTINUATION SCHOOL.

The Board of Directors consists of nineteen men presided over by the Assistant Burgomeister. The majority of the Board hold their positions by virtue of their connections with the city government. The others are chosen by the city council. Four are expert schoolmen; one is the Royal School Inspector, one the Director of the Industrial Arts School of Crefeld, one a teacher in the Classical School, and one the Director of the Continuation School. Five of the Board are manufacturers: one is a velvet manufacturer, one a silk manufacturer, one a silk printer and dyer, one a manufacturer of machinery and one a publisher. Seven are master mechanics: one is the head master of the Carpenter and Cabinet-maker's Guild, one the head master of the Tailor's Guild, one the head master of the Baker's Guild, one a jeweler, and one a plumber. The Board also includes one professional architect and one merchant.

Every one of these men ought to contribute to the success of the Board. With the exception of the Assistant Lord Mayor and the four schoolmen, they are all actively interested in commerce or industry. The four schoolmen are carefully selected with the view of keeping the continuation school in close touch with the other schools of the city and state, and insuring consideration for cultural ideals in the management of the continuation schools.

Besides the director there are fourteen teachers who are employed exclusively in the continuation school, and thirty-eight who devote a part of their time to this work, while their main employment is elsewhere. Of the thirty-eight, twelve are elementary school teachers, two are technical teachers from the Royal Weaving School, and twenty-four are mechanics or engineers. Friends of the industrial schools in Germany insist very strongly that the technical part of the instruction of the apprentices must be given by men in the trades; and that the elementary teachers employed in teaching even such subjects as German and mathematics must acquire in some way practical knowledge of the trades followed by the pupils. The report for 1909 shows that during the year one elementary teacher took a three week's course in the experimental school for bakers and millers in Berlin. Another devoted some time to the study of the art of hair-dressing. Another took a three week's course of training in artistic script or lettering in the Industrial Arts School of Crefeld. Another took a course in single and double-entry bookkeeping which lasted six months. A four week's course in

the pedagogical methods of industrial school work was given to mechanics and engineers during the summer vacation. Building inspectors and engineers from the various cities of the Rhine Province were called to Crefeld to take part in this conference.

During the fiscal year the receipts consisted of the following items:

Tuition	17,340 marks
Contributions from Guilds, Unions and Donations.....	200 marks
Other receipts.....	120 marks
Contributions from the commercial and industrial authorities....	26,000 marks
Contributions from the City Treasury.....	49,890 marks
Total	93,550 marks

Personal expenditures.....	87,067 marks
Expenditures for supplies.....	6,483 marks
Total	93,550 marks

Besides this, the city furnished the schoolrooms and bore the cost of maintenance, lighting, heating, cleaning, and fire insurance. These items amount to 12400 marks.

The regular tuition fee is six marks a year, but for voluntary outside pupils, twelve marks a year. It is paid quarterly by the parents or by the employers.

Of the 517 hours of instruction of the past year,

242 hours were given in the time from 7-1 a. m., or.....	47%
111 hours were given in the time from 2-6 a. m., or.....	21%
164 hours were given in the time from 6-8 a. m., or.....	32%

This table shows that nearly half of the work is done before one o'clock p.m., over two-thirds before six o'clock, and a little less than one-third of the work is done between six and eight p.m. The masters and teachers cooperate in arranging a study plan that will not interfere too seriously with the workshop, and that will, at the same time, make it possible for the boy to do his studying at an hour when he is physically able to accomplish something. Both masters and teachers realize that the old plan of utilizing the fag end of a boy's energies for his education in the late evening hours and on Sunday is a mistake.

HOURS OF INSTRUCTION IN VARIOUS TRADES.

In all trades, at least four hours of instruction per week is given, the average being six hours; two hours is given to industrial science and

civics, one hour to technical mathematics, including bookkeeping and one hour to business correspondence. Besides this minimum of four hours per week, the various apprentices receive additional instruction as follows, the figures indicating hours per week:

1. *Bakers*, none.
2. *Confectioners*, first three half years, 2 of drawing; three following half years, 2 in decorative confectionery.
3. *Butchers*, in all cases, 2 of zoology.
4. *Waiters and cooks*, 2 of setting tables and serving.
5. *Barbers and hairdressers*, 2 of instruction in the practice of cutting and dressing hair.
6. *Tailors*, 3 of technical drawing and technical instruction in sewing.
7. *Shoe and leggin makers*, 4 of technical drawing and practical workshop instruction.
8. *Sadlers*, 2 of technical drawing and manufacture of models.
9. *Cushion makers and decorators*, 2 of technical drawing, cushion-making and decorating.
10. *Builders*, 2 of technical drawing.
11. *Gardeners*, 4 of botany, surveying, and drawing of plants.
12. *Carpenters and cabinet makers*, 2 of technical drawing.
13. *Wagon makers and wagon-smiths*, 2 of technical drawing.
14. *Horseshoers*, 2 of technical drawing, and 2 of practical instruction in horse-shoeing.
15. *Builders and artistic blacksmiths*, 2 of technical drawing.
16. *Sheet-iron workers and plumbers*, 2 of technical drawing.
17. *Machine smith workers*, 2 of technical drawing.
18. *Mechanical and electrical engineers*, 4 of technical drawing and physics.
19. *Engravers*, 3 of technical drawing.
20. *Typesetters and printers*, 2 of lettering and spacing.
21. *Bookbinders*, 2 of technical drawing; 2 of pasting, and preparation of marbled paper.
22. *Lithographers*, 2 of technical drawing.
23. *Dyers*, none.
24. *Finishers and cloth printers*, none.
25. *Weavers and spinners*, third year, 2 of practical work in the weaving room.
26. *Designers*, 4 of technical drawing.
27. *Helpers*, none.
28. *Merchant apprentices*, in all 6 of science of commerce, counting-room work, commercial arithmetic, penmanship, commercial geography, study of commercial wares and bookkeeping.
29. *Errand boys*, none.
30. *Apprentices failing in the journeyman examination*, 2 of drawing.
31. *Feeble-minded*, 2 of manual training, instruction in wood and paper work.

SUMMARY OF ATTENDANCE ACCORDING TO PRINCIPAL GROUPS OF WORKERS.

School Year	1907-08	1908-09	1909-10
Mechanics' apprentices	1369	1439	1418
Apprentices in the factories.....	571	795	1018
Unskilled	430	520	641
Total	2370	2754	3077

In the school year 1908-09 and in the school year 1909-10 apprentices in the textile industry with their associated branches were required to attend the Continuation School. The youthful employees in the trades of weavers, spinners, colorers and finishers were counted in as apprentices. This explains the comparatively great increase in the number of apprentices in the factories. (See accompanying table.)

ABSENCES IN THE INDIVIDUAL TRADES.

The absences in percentage run from 4.3% in the case of the shop-keeper's apprentices; to 9.8% with the waiters and cooks. The waiters and cooks also have the highest percentage of unexcused absences, 4.7%; the wagon and carriage-makers having the lowest, .7%. The highest percentage on account of illness was charged to the engravers, 6.1%; while the lowest, .6%, was given to the gardener's apprentices. The percentage of absences was highest in the case of apprentices from small industries, absences of apprentices from the large industries usually being the fault of the boy himself. Absences of apprentices from the small industries were usually the result of stress of work in the shops. The school authorities regarded this year's showing of percentage as high and made an earnest appeal to the masters to keep their apprentices in school. It should also be mentioned that the law punishes the boy, parent, and master for unexcused absences from the continuation school.

The following classes of persons are excused attendance at the continuation school:

First: Those entitled to the privilege of one year's military service as volunteers.

Second: Pupils who attend the Industrial Day School of Crefeld for a year with a good record.

Third: Pupils of the commercial schools of the Chamber of Commerce.

Fourth: Those apprentices and workers employed in Crefeld but living outside who bring evidence, which is recognized as satisfactory by the president of the city government, that they are attending a continuation school at their home town.

GROUPING OF PUPILS ACCORDING TO THEIR PREPARATORY INSTRUCTION.

Since Easter 1900 there were newly admitted to the schools	No.	From the higher schools	Number who had finished the elementary school course	Number who had not finished the elementary course	From schools for the feeble-minded	Pupils from other schools	
						From one or two-class village schools	From a several-class village school
Mechanics }	423	2	207	95	2	21	96
Apprentices }							
Apprentices in }	361	4	158	106	3	8	82
the factories }							
Unskilled }	225	.....	64	64	15	3	41
Total.....	1009	6	467	265	20	32	219

VOCATION

Fifth: Pupils of special ability who may be transferred to the hand workers' and industrial arts school. This arrangement applies to pupils who are qualified for drawing of a higher character than that given in the continuation school, and who now receive their drawing instruction, as well as their workshop instruction, in the industrial arts school. Journeymen who have completed the continuation school for apprentices, but who are still compelled to attend a continuation school may substitute for this time in the hand-workers' and industrial arts school. In the summer of 1909 only thirty pupils were excused and in the winter only thirty-three.

RELATIONS WITH THE GUILDS AND UNIONS.

During the past school year the relations between the guilds and other unions of workers and the schools have been very friendly. At the invitation of the guilds the school was represented by the director or by technical teachers at most of the examinations of the apprentices for journeymen's certificates or at the conclusion of their apprenticeship. The shoemakers' and tailors' guilds made, as in earlier years, considerable contributions to the cost of the workshop instruction of their apprentices, and have shown their lively interest in the school by frequent visits. Several guilds have provided prizes for their apprentices.

By authority of the president of the board of education and at the wish of the shoemakers' and tailors' guilds, the Easter and the Whitsun holidays were lengthened one week for the classes in this trade so that in the future they will comprise two weeks before and one week after the holiday. The time lost will be made up between Easter and autumn. On a petition of the Guild of Confectioners, the Christmas holidays were extended thru the entire month of December. The loss will be made good by an increase in the time of instruction of one hour per week in the months of January, February, and March.

Negotiations with the representatives of the business owners concerned led to the placing of the instruction of commercial apprentices upon two half days before noon, so that the instruction of these pupils now comes twice in the morning between seven and ten, instead of three times between seven and nine, a change which is as beneficial to the instruction as it is to the business.

The citizens of Crefeld are greatly interested in the physical, social, and moral education of their apprentices. All Germany, in fact, is awaking to the importance of providing instruction for the apprentices that shall aim at something more than making a good workman. In almost every city are to be found organizations of public spirited citizens who are supporting the school in its efforts to provide the physical, social,

15. "Prussian Song," sung in unison.
16. (a) "Reiterlied".....Poem by *Fr. von Schiller*.
 (b) "Krigers Zuversicht".....Poem by *E. M. Arndt*.
 School choir with musical accompaniment
 (Melody: Old Prussian Army March)
17. "Prussian Tattoo"*Saro*.
 with closing song
18. "Deutschland, Deutschland, uber alles," sung in unison.
 Music: City Orchestra.
 Choir: 300 Continuation School Pupils.

Five evenings of the week are used for turning, under the leadership of a trained conductor. Both of the city halls, lying on opposite sides of the city, stand at the disposal of the pupils in order to make attendance easier. On 176 evenings, 7,050 pupils took part in these exercises, an average of about forty pupils per evening. On three occasions, the continuation school held something like an American "field-day" where the various turning teachers had an opportunity to carry out their performances on a greater scale.

Play in the open is zealously cared for. The city play grounds are crowded on the days set aside for this school. On each one of the sixty-four Sundays and holidays of the past year, about 500 young people took part in the play. The director of games permits the boys to regulate the games so far as possible.

EXCURSIONS.

Excursions conducted by the teachers have not generally been satisfactory. Teachers are unable and unwilling to leave their families on Sunday and give these excursions the attention they deserve. The young people, too, love freedom, and the supervision of the teacher awakens among them a feeling of compulsion and guardianship. As the purpose of the school is to develop self-control, independence, and a feeling of responsibility, the school faculty have limited their activity to promoting the formation of excursion clubs, and giving them advice. The club chooses its own leader out of the circle of present or former pupils, the school faculty having the right of veto. Every leader of the six clubs formed up to the present time has received from the faculty a map of the neighborhood of Crefeld. The marching plan and cost of every excursion is given by the leader a few days before by means of placards on the school walls. From time to time the leaders are called in by the faculty to give a report of the last excursion. The conduct of the

excursion clubs up to the present time has been satisfactory. The number of young people who have been induced to take part in these excursions has steadily increased. The lack of a grown-up conductor has had no bad results, as the leaders have insisted upon strict order. Besides the free school excursions, special excursions under the conduct of a teacher have been taken by the classes for the purpose of visiting various industrial plants.

During the school year the pupils have made zealous use of the opportunities offered for baths and swimming. The city authorities have provided a swimming tank in the city bath for the industrial continuation school pupils on Sunday mornings. For a fee of ten pf. (two cents and a half) on 48 Sundays about 4,941 continuation school boys, an average of 103 per morning, have taken a swim. The greatest attendance (274) was on the 7th of August, and the smallest attendance (32) on the 2d of January. A special swimming teacher gives the pupils free swimming lessons. Quite a number of swimmers have secured the "free swimming certificate."

The school library is enjoyed by the industrial continuation school pupils. The manager of the library has a printed list of books which is furnished to the pupils. Books are given out on Sunday morning from 10-12, and on Wednesday evenings from 7:30-8:30. In 40 school weeks on 72 evenings, 4,757 books were loaned to 482 pupils. The library has proved not only an effective means of combatting trashy literature, but a rich source for supplementing and deepening the instruction given in the school.

SAMARITAN COURSE.

Twenty reliable students of the upper grade have been admitted into the Samaritan course for pupils of the industrial continuation school. The course is conducted by a special teacher who has been especially trained for this work, and who is an active member of the Crefeld Samaritan Union of the Red Cross. The purpose of this course of instruction is to promote the effective interest of the young men in first help to the injured in the workshop, in the house, and on the street. The pupils follow the theory with active interest and are dexterous in the practical exercises.

A course in stenography has been offered by an experienced teacher who has imparted instruction to seventeen pupils in correspondence stenography, and to eighteen pupils in court reporting. Some of the pupils

in the beginning course were brought up to 100 syllables a minute. The rivalry of the boys was spurred on thru prizes.

The pupils of the music course number twelve, and practice one evening a week under the conduct of a concert master. At these rehearsals the pupils gain skill in the handling of their instruments free of cost. On the evenings of school entertainments the school orchestra has performed valuable service, and its excellent work has won the approval of all.

APPRENTICE HOME.

To keep the pupils off of the street and away from the drinking houses on Sunday afternoons and in winter when the weather prevents play in the open, and at the same time to entertain them and employ them usefully is the work of the Apprentice Home. This has existed for four years and with every year has increased the scope of its work. During the past year six convenient rooms have been in use. The management of these rooms was in the hands of a special continuation school teacher who was helped by many public-spirited citizens.

In order to work against the inordinate desire for amusement and the wastefulness of youth, the industrial continuation school has sought to awaken a sense of economy by means of school savings banks. The treasury is supervised by school officials, and inspected by a head cashier chosen by the chairman of the school committee. Depositors are paid back their money at any time, upon request. During the last school year 35,925 marks (about \$8,982) was deposited by 509 pupils, an average of 90 marks weekly upon which 4% interest has been paid.

Pupils and their parents are often in need of friendly advice in matters connected with the training and employment of the children. This is provided them at the consultation office, which is under the management of the director of the Continuation School. The office is in great demand by pupils, parents, and masters.

These various organizations have bound the pupils of the school together in a strong bond of friendship. The influence of the school and its teachers upon the pupils is strengthened in this way. The pupils feel that the school is their friend, interested in their education and welfare. The boy is treated as a whole boy, and not merely as a machine for turning off work. He is not merely trained for life, but actually lives while he is in the school.

Many contributions were made to the apparatus and books of the school in the course of the school year by the Prussian Ministry of

Commerce and Industry, many owners of industrial plants, teachers, mechanics and former pupils of the school.

Legacies and Bequests in which the Industrial Continuation School has an interest, include the following:

1. Friederich Wilhelm bequest for granting of scholarships to pupils of such schools as aim at the study of industrial subjects; approved by order of the Ministry on the 9th of October, 1902. Amount of capital, 12,198 marks.

2. Legacy of the deceased Assistant Councillor, Ludwig Friederich Senffardt, for the support of the elementary and continuation schools; approved by the order of the Ministry on the 24th of November, 1901. Amount of capital, 155,885 marks.

3. Legacy from Heinrich Dediger for the support of pupils in the continuation school; approved by the order of the Ministry on the 18th of January, 1904. Amount of capital, 2,255 marks.

4. The funds for scholarships in the industrial schools (granted by the painters' guild) for the purpose of supplying apparatus to needy scholars. Amount of capital, 568 marks.

INDUSTRIAL DAY SCHOOL.

The industrial day school is a preparatory school for handwork and technic, and provides a partial substitute for the industrial continuation school. It takes the pupils immediately upon leaving the elementary school, and gives them a year's preparation for their trade.

The industrial day school in one year with 38 hours of instruction per week reaches the goal which the continuation school reaches in three years. While the continuation school pupils in three years with six hours per week for forty weeks, receive 720 hours of instruction, the day school pupils in one year receive 1,520 hours of instruction, more than twice the amount of the entire continuation school instruction.

Attendance at the industrial day school is especially to be recommended to those who have chosen a technical or industrial arts vocation in which a thoro preparation in drawing is necessary.

According to Paragraph 3 in the local ordinances concerning the industrial continuation school, those pupils who have done good work in the industrial day school for a year are excused from attendance at the industrial continuation school. After the year, they enter practical life, but they may prepare themselves further by voluntary attendance at the handworkers' and industrial arts school. They can be accepted as all-

day pupils in the above named institutions, and receive their practical education in the workshops there.

One of the advantages of the industrial day school is that here many pupils are prevented from making an unsatisfactory choice of a trade. Here it will be often shown that they do not possess the bodily and mental strength necessary for *certain* trades, while they may be admirably fitted for another trade. In many cases it will be possible to get hold of the pupils early enough to protect them from the disappointment that results from a mistaken choice of trade.

Pupils are admitted into the industrial day school regularly at Easter, and in exceptional cases, in autumn. Only such pupils will be accepted as have finished the elementary school, and can show in all subjects taught there a satisfactory knowledge. Applications can be made at the consultation office of the industrial continuation school.

The tuition amounts to 60 marks per year, and is paid in half-yearly installments of thirty marks (about seven dollars and a half). For needy, ambitious scholars this may be entirely or partially omitted at the discretion of the Director.

The industrial day school is managed by a Board of Education, and is under the special direction of the Director of the industrial continuation school.

COURSE OF STUDY.

SUBJECTS	NUMBER OF HOURS	
	Class A	Class B
	Technical Course	Course for Decorative Trades
1. Religion and moral teaching.....	2	2
2. Industry and science.....	2	2
3. Industrial composition and correspondence.....	2	2
4. Industrial bookkeeping	1	1
5. Study of materials.....	2	2
6. Industrial arithmetic	3	5
7. Algebra	3	0
8. Geometry	4	4
9. Natural history	2	2
10. Linear and perspective drawing.....	8	4
11. Technical and special drawing.....		
12. Ornamental special drawing.....	3	8
13. Perspective drawing after models and patterns....	3	3
14. Workshop instruction	3	3
Total	38	38

With the beginning of the year 1910, workshop instruction is to be introduced as an experiment. It will be a counterbalance to the purely theoretical training by providing a body of observation and experience. It should heighten the respect for manual work and should increase the joy of work.

In conclusion I would say that the aim, organization, and spirit of the continuation school of Crefeld would meet with approval in a far more démocratic country than Germany. This school really aims at the development of the individual and citizen as well as of the producer. The course of study appears simple, practical and not crowded with fads. The boy is considered as a probable manager of a small business, and the course provides both business and technical training.

The Board of Education is, on paper at least, ideal in that it includes officials, employers, workmen and representative schoolmen. Managers of big business organizations devote the necessary time to the supervision of the continuation school. Representatives of the various trades are given an equal share. The merchant and architect stand for the business and professional world. The educators on the Board are men actively engaged in various phases of school work. The sole purpose of this Board is the care of the continuation schools of Crefeld.

In Crefeld, as elsewhere in Germany, you find both elementary teachers and men from the trades employed as teachers in the industrial schools. The number of teachers whose time is fully taken up with work in the continuation school is on the increase in Germany. Writers on the subject believe that the majority of the teachers in such schools should be employed for full time and should make the work in the continuation school their main occupation, thus giving the continuation school system a more independent character.

The proportion of the elementary teachers employed in Crefeld is smaller than in most German cities. Those employed in the continuation schools are given some practical training in the shop, while on the other hand, men from the trades are required to acquaint themselves with ordinary teaching practice. Considerable prejudice exists in Germany against the ordinary school teacher as a continuation school teacher. The elementary teachers are inclined to rely too much upon theory and device, and often seem to believe that by such means they can do without practical knowledge of the trades. The best schoolmen, however, believe that even to teach the mother-tongue, civics, and mathematics of the continuation school more practical knowledge is required. The

subjects are not taught as mere subjects but as applied to a definite aim, some trade.

The systematic and thoroughgoing consideration of the boy's welfare as a boy, that cares for his general culture and amusements as well as for his shop training, will be a surprise to many who have been reading about industrial schools. Even in our American cities it will be hard to match the showing made by Crefeld in this respect. By means of these welfare organizations the Crefeld schools have developed among the boys a sense of loyalty that brings them back at times of reunions and festivals, that leads to gifts and work for the school by former pupils. The increasing use made of the consultation office by parents and pupils shows the confidence of the people in the Crefeld organization.

The full-day industrial school is a comparatively new feature in the German school system. I saw a similar school in Dresden, and there are one or two others in Germany. It serves a very useful purpose in preventing disappointments on the part of young people due to the selection of a wrong vocation. It enables gifted boys to enter the industrial arts school without loss of time, and to develop their special talent to the great advantage of themselves and the community. Many schoolmen, while approving of such pre-apprentice schools, regard it as a mistake to exempt their students from continuation school work during their apprenticeship. The resulting separation between practical work and the school is a disadvantage. Then, too, the work will be better done by the boy if carried on during the three years of growth (14 and 18), than it can be if crowded into a single year. The value of the continuation school in forming proper intellectual and moral habits is a most important consideration. Such intellectual and moral habits can be best secured by systematic, long-continued training and influence during these critical years of adolescence.



FIG. 1. THE WORCESTER TRADE SCHOOL.

THE COMMERCIAL SCHOOL SHOP.

ELMER H. FISH.

IN discussing the commercial school shop in vocational education it may be helpful to review the relation between manual training, industrial training, and technical education.

This relation may be illustrated by saying that, given a gun and a target, a manual training teacher would have each pupil shoot until by some chance he hit the bull's-eye once, the industrial school teacher would keep him at it until he habitually hit it, only occasionally lapsing from his regular habit, the technical professor would have him study powders, projectiles, trajectories, etc. He might allow him to shoot the gun once, but only to illustrate what he had studied.

All three of these men are right in their way. The manual training man gets all the educational value possible from a given exercise, because after the pupil has once performed an operation correctly further repetition fails to educate his brain, except in ways that we will see later. The technical professor is training his pupils, not so that they can earn a living by performing operations, but so that they can intelligently tell

other men what operations they should perform on other pieces of work. Incidentally he gets a large part of the educational value of each exercise, because his pupils are more mature and are able to see wherein they failed in practice, if they failed, and to profit thereby. The function of the industrial school instructor, however, is that of giving his pupils education plus experience.

If it were not for the necessity of graduating pupils with experience the ordinary manual training methods, expanded, would be ample. It may be said with perfect truth that experience ought to be acquired in actual employment outside of the school. At the same time we have to recognize the fact that the modern trend of commercial shop organization makes it increasingly difficult to do this very thing, the inevitable result of attempting it outside the shops of a very few broad minded employers being to make specialists who are hopelessly handicapped in the race from the very start.

That experience is a necessary asset of a journeyman mechanic is conceded by everyone. That it must be given in schools or never given in a broad way must be evident to any student of modern shop conditions, unless he has faith that a most radical change in these shop conditions can be effected.

This condition of affairs must be faced boldly and with confidence but not in the spirit of an iconoclast. We must seek out all that is valuable in past experience, and where that does not serve we must create new ways of training and making experience.

The old shop apprenticeship gave experience in a most thoro but inefficient way. The boy at all times was kept on work well within his capacity. No effort was made to increase that capacity by his superiors. It simply grew by association with the work and workmen. In the three years' apprenticeship the actual total of intentional instruction could be easily covered by three weeks. The rest of the time he was tolerated, and paid accordingly! Nevertheless the results from this wasteful process were sufficiently good so that if we reach them in industrial schools we are not likely to be deemed to have failed.

THE IDEALS SOUGHT.

What then are the virtues of the older methods of training that are worth preserving?

First, there is the association in school of pupils in considerable numbers, as against their segregation in various shops. This association



FIG. 2. GENERAL VIEW OF WOOD-SHOP.

enables the pupils to be kept away from the influence of the very considerable contaminating effect of ordinary shop association. For example, the first thing an apprentice boy learns is to swear, the second to watch the foreman, both of which evils can be eliminated where the pupils are in the majority.

Moreover the bringing together of boys in considerable groups fosters a rivalry between classes that is especially advantageous in that it helps to hold the boys together so that a larger percentage will graduate than otherwise would. While it may be easily proved that years spent in learning a trade are very profitable, it is not necessary to prove that an appeal to young America on that basis is not sufficient to arouse the interest of those who most need this training. The shops offer the added inducement of wages. Public schools probably cannot make the same offer. The inducements which they can offer are those of the older schools in the various forms of athletic and social activities.

Second, there is the individual practice of the shops as contrasted with the class practice of manual training. To be sure we meet here the defense that except by the use of class exercises not all pupils will be treated alike.

We are beginning to realize that every pupil is a problem by himself and that, while orders may be conveyed and instruction given in classes with profit, practice which is the following up of orders and instructions must be supervised individually in order to produce the best results, in other words we are learning to know that treating everybody alike is unjust. Therefore, we take these two elements: classroom instruction from the school; individual practice, with personal supervision, from the shops.

I do not wish to be understood as advocating the use of the same classroom methods in industrial schools as in other secondary schools, but simply that we will do well to preserve the classroom idea as a means of imparting information.

ADVANTAGES OF COMMERCIAL WORK.

The principal purpose of this paper is to discuss the commercial shop idea as it applies to industrial schools, that is, to the practice work of a school.

Briefly the arguments for the commercial work are these: First, interest: pupils are more easily interested in something of use; Second, thoroughness: it is much easier to insist on accuracy of workmanship when



FIG. 3. GENERAL VIEW OF MACHINE-SHOP.

the product must meet commercial conditions; Third, speed: speed can be gotten without crowding when a comparison can be made with commercial practice; Fourth, efficiency: pupils are capable of doing a large amount of work. Whatever effort they put forth should result in the largest possible return to society for its investment in their education and training.

Opposed to these considerations are: First, the danger of exploiting pupils thru too great desire for a good financial showing; second, the danger of antagonizing competing manufacturers by the invading of a private market by a public corporation; Third, the danger of antagonizing labor in the same way. It may be of interest to discuss each of these arguments.

1. Interest. It is difficult for the average man to interest himself in the abstract. Shopwork which is not a part of a valuable product, is abstract. As a matter of experience I would say that the average boy of 16 years of age will get four times the training from chipping a slot in a tool-post for a lathe that he would get from chipping the same amount of steel that is merely to be used again and again until it is all gone. On the other hand, abstract exercises, have their disciplinary value, as for example, a boy who chips carelessly on a tool-post can be brought to a realization of his sins by being relegated to a block of steel until he is ready to be careful.

2. Thoroness. We have found a very great value in the fact that work sold is inspected by outsiders who have no acquaintance with pupils or their troubles. We are fortunately all human and humane. After we have seen a boy struggle with a difficult job, watched him thru the valley of despair and finally seen him win out, it is hard for us to reject his work for a trifling error that he probably would correct at the next attempt. Here the outside inspector comes to our aid by calmly rejecting the work for the very simple reason that it is not right. The disciplinary value of this inspection and its realism are two of the most potent factors in the imparting of experience to pupils.

It is not wise to do as is occasionally done, sell "second quality goods" at second quality prices. The scrap heap may be large but it will inevitably be found that boys can and will, save for occasional lapses, turn out as good work as is distinctly and firmly demanded.

A small proportion of work actually sold will serve to set a standard for a considerable quantity used in the school. Of course, no school ought to buy what it can make, provided the making is in line with the

training which it is desired to give. An excellent expedient during the period of the equipment of a school is to make machinery in larger quantities than is needed and exchange the surplus for other equipment needed. The work offered in exchange must then pass the inspection of the market.

3. Speed. Modern conditions have little use for a man, no matter how skilled, whose production falls below a reasonable speed. In fact



FIG. 4. DRAFTING ROOM—WHOLLY EQUIPPED BY BOYS.

it is easy to show that a shop having a considerable overhead charge to meet might easily become bankrupt thru the employment of slow workers even tho they paid no wages at all.

Such being the case it is desirable that graduates of industrial schools should be if not rapid workers, at least trained to know what pace they must set to hold a position. The use of commercial work is especially valuable in this connection because it affords a real basis of comparison. For example, a boy was turning up brass bushings, for which we received 2 cents each, averaging an hour for each one. After being shown that at that rate he was worth 2 cents an hour minus the overhead charges of the plant (about 15 cents per hour), or about 13 cents less than nothing, he began to see ways in which he could increase his production. Of course, it would be possible to estimate time on exercise work, but estimates do not have the same effect on students that the actual facts do, nor are they so likely to be correct.

Crowding pupils to get speed is dangerous on account of the possibility of exploitation. Speed should be attained solely for the good of the pupil, not for sake of getting work out of the shop at a given date except in rare cases. This is a most difficult thing to show to the manufacturers from whom work is obtained. However, it will not do to take outside work on close delivery dates. It is better to have none at all.

4. Efficiency. So far as the pupil is concerned efficiency has been covered in the previous paragraphs. As affecting the community, it must be admitted that the taxpayers are entitled to the most economical administration possible, consistent with the best training. In this case the two things are entirely consistent, inasmuch as the best training for other reasons involves usable product which in turn helps to reduce the cost of running the school. Then too, waste of time and energy is always regrettable. To put boys or girls to work, performing what might be useful operations, on useless product seems so far from the reasonable, normal thing to do, that no one would consider it except for the imaginary obstacles of the opposition of labor and capital which will be discussed later.

DANGERS IN COMMERCIAL WORK.

1. Exploitation. As stated above, there is a wonderful amount of potential energy in a 14 or 15 year old boy. Under proper direction this can be turned into a large amount of valuable work. The conditions which bring forth the largest amount of work are not the best for the training of the pupil. There must be a balancing of one against the other so that the maximum of efficiency in the education and training of the boy shall be attained with the greatest possible efficiency in the production of what is produced.

A school in the formative stage, as most schools are to-day, will find this difficult because it will be necessary to do many jobs by inefficient methods since beginners should be taught to do work by purely shop methods in distinction from factory methods. For example, a boy may very well be taught to drill to a scribed circle when modern methods would dictate that he should do the work with a jig. The latter method of drilling might be desirable after the school had acquired a class of boys in their third or fourth year able to make their own jigs.

The danger of exploitation may readily come about thru politics. The expense of conducting industrial schools appears to be necessarily greater than that to which the public is accustomed in other secondary

schools. In order to get the political body which governs the finances of a city to establish a school it is very easy to claim that the productive element may be pushed so that the cost may be as low as that of other secondary schools. It would also be possible to claim, and the claim could be made good, that with a picked group of boys and a school with several hundred pupils and teaching a selected group of trades, the schools could be made self supporting.

It is easy to see that a school which is self supporting is something beside an educational institution. Such an institution, which could also pay its pupils wages, might be the best possible solution of the problem, but so long as it cannot pay wages it must be borne in mind that the largest expense to the community lies in the loss of wages which the pupils might otherwise earn. This is offset later in the increased earning capacity of the pupils but the loss is a present one and falls on the parents of the pupils who are usually ill prepared to meet it.

The average boy could easily earn a thousand dollars during four years. The cost to the community of a four years' course in a trade school ought not to be over \$600. The resulting gain in worth of the boys' time perfectly justifies the expenditure of the \$1,600. The city is amply able to invest its \$600 and wait for the return, but parents as a rule are not able to invest the \$1,000, certainly not the parents of the boys who most need this training.

Under these circumstances it is the plain duty of the school to see to it that the least possible amount of the pupils' time is wasted consistent with his health and the right of his parents to a reasonable amount of his services.

2. Labor. This brings us in apparent conflict with another possible objection, the labor element. This has to many minds been the great bug-bear of the whole movement. In fact it has been so feared that no one has apparently taken the trouble to inquire into its real attitude. By labor element I mean, not organized labor alone, but that twenty times larger body that votes on civic matters.

We have found in Worcester that this element wants two things. First, that every thing that we do shall be open to anybody's view at any time; Second, that we shall really teach a trade and do it thoroly. They object to our turning out "half baked" mechanics to compete for employment with men who know their trade. In this I believe they are right. At present they are judging the efficiency of the course by its length, which is perhaps the only way in which they can judge it until our graduates have been out a few years.

3. *The Manufacturer.* The objection that competition with manufacturers may antagonize them is also an imaginary one. We have had more difficulty in keeping local manufacturers informed that we were in existence than we have in avoiding competition with them. The amount of work required in any community to keep a trade school supplied is not likely to be more than a single day's work in a year for the shops in the same trades. We have had loyal support from local manufacturers from the time that they became convinced that we could and would turn out good work.

After following so far the reader who is actually engaged in solving the difficulties of a trade school will ask—What commercial work can we get that is practical and practicable? In answer to this question I can only tell what we have done and what we are aiming to do in Worcester. The success that we have so far met in our efforts in this direction is sufficient to fully convince us that we can carry out our plans in the future.

Our work is so far confined to machine work, patternmaking, cabinet-making, and carpentry, therefore I shall confine myself to these trades. In reviewing the work I wish to say that we by no means abhor exercises in their place.

THE PLACE OF PRACTICE EXERCISES.

Outside the scope of industrial education, in art, in music, in commerce, in law, medicine, and religion, it has already been found that a close approximation to the methods followed by the best artists, musicians, accountants, lawyers, etc., in their practice is the best way to follow in the practice of the schools. This practice is of course accompanied by instruction, but that is another subject. On the other hand in many trades, arts, and professions, the training of hand or eye is aided by practice which is in the nature of exercise and which may not have commercial value. Years ago a blacksmith's apprentice was set to forging horseshoe-nails, not because they could not be bought, but because in this work he spoiled less stock in acquiring facility with fire and hammer than in any other way. He practiced making welds on worthless scraps of iron until he could make welds with certainty. The same is true of most trades. The necessity of practice is evident, but the loss of material in commercial work spoiled is equally evident. When hard headed business men resort to this expedient we can hardly refuse to consider it provided we consistently use it as a means and not as an end.

Conceding a limited amount of practice work given the pupil we can say to him that he shall have practical work as soon as he can demonstrate his ability to do it without excessive waste; then it becomes necessary to provide that practical work, and in logical sequence, tho this logical sequence may vary with every boy and is at best a matter of judgment with the instructor rather than something that may be laid down beforehand.



FIG. 5. CHAIR DESIGNED AND MADE FOR SCHOOL USE. THESE CHAIRS ARE MADE IN QUANTITIES BY THE BOYS, USING LABOR-SAVING MACHINERY FROM THE BEGINNING. WE USE THEM IN PREFERENCE TO DESKS.

Speaking in the light of experience I should say that commercial work is very readily found for the machine-shop, with more difficulty in cabinet-making, and with still more difficulty in pattern-making and carpentry. Taking these things in reverse order we begin with:

Carpentry. By this we mean house-framing, setting of door and window-frames, sheathing, shingling, etc., as distinguished from inside carpentry, house finishing or cabinet work. Our work along this line resolves itself into the building of frames for garages, cottages, etc., of commercial sizes and of commercial stock, which when completed may be taken down and sold for a trifle more than the price

of the stock or if no purchaser appears may be re-used by the next class to construct a building of somewhat smaller size.

Only enough sheathing is done to enable a window or door-frame to be set, inasmuch as that work is unskilled work and is often done by laborers. Shingling and clap-boarding under these conditions must necessarily be torn down and the time and a large part of the stock wasted. Shingling is never done in shops but only in the field. Therefore we shall have to send our boys into the field to give them commercial work. So far we have only been able to see a possibility of this thru half time or other form of cooperation with local employers.

Pattern-making. The pattern-making industry is peculiar in that it is exclusively "custom work." But one pattern is made of a piece except

in metal pattern-making which may be classed for purposes of instruction as machine work.

Ostensibly to treat all students alike and as a matter of convenience to the instructor it is usual for schools to have each pupil make a pattern for every job that is brought into the shop, and it may be necessary to follow this idea to an extent, especially at the start.

Pattern-making also has the same peculiarity as tool, jig, and fixture making in that it is a means to an end rather than an end in itself. A pattern is a tool which a molder needs in order to produce something of value, a casting. It has no intrinsic value, and cannot be sold in the open market. Therefore no one can make patterns for sale except on order. Taking orders for patterns is difficult because few people will order patterns from jobbing shops except for rush orders. A little work may be obtained from friendly shops in the nature of replacements of worn out patterns but this is entirely unclassified and must be taken, if taken at all, as it is offered. The best solution of the problem of commercial pattern-making that we know of is to run it in connection with the machine-shop and drafting-room. A machine-shop course, as will be seen later, is a very flexible thing.

It is possible for a shop to continue year after year bringing out new machines or new designs of old machines which in time produces work of a highly desirable nature for both drawing room and pattern-shop. By having a large amount of work of this nature under way in the drafting room it is possible to pick jobs which shall follow one another in logical sequence and with as small steps as may be necessary between them for the individual pupil.

It should also be borne in mind that the nature of the pattern-making trade does not make it so necessary that as great amount of practice should be given as in most other trades. The actual making of a pattern after it has been designed is a comparatively simple matter. The study of the design of patterns, working from the drawings of the machine for which the patterns are to be made, is the largest part of the trade and the part which should receive the most attention. The method here outlined is logical and in line with shop practice in that the drawing room and pattern-shop are tributary to the machine-shop.

Cabinet-making. This trade in its highest form is also custom work and includes furniture, and interior finish for houses, stores, offices, etc. However, there is an abundance of work of a simple nature that is made

in large quantities. In commercial shops this work is done on special machines with an astonishing rapidity which cannot of course be duplicated with advantage by our pupils.

This work can be drawn largely from furniture lines, particularly drawing room furniture, for bench work and from such work as spool and bobbin manufacture, handles, banisters, dumb-bells, Indian clubs, etc., for lathe work. It will be found that most of this work returns only the cost of stock inasmuch as it competes with work done in the west where lumber is cheaper than here, and the difference in freight between rough stock and the finished article often covers the cost of labor.

We have done as yet very little of this work in Worcester, because of the press of work for our own equipment.

We have contemplated a full set of furniture, well made, of low price wood, and of artistic design, which last we are assured by the hearty cooperation of the Worcester Art Museum. It is our intention to put this line on the market thru all local stores that are willing to handle it at a uniform price and terms. We will probably begin with the Mission style and later develop the more elaborate types since the latter are required to give varied practice.

Machine Work. This is essentially repetitive except in model and die-making and making special machinery. The methods in vogue for production in large lots and in single units are not especially different in principle tho they may vary in practice. Machine work may be divided into: (1) Preparation of work for Machining; (2) Machining; (3) Erecting.

1. Preparation of the work. This includes deciding upon the operations to be performed, their order, the best machine in which to perform them, the laying out of the work, the setting it up on the machine, grinding and setting of cutting tool, speeds and feeds. This varies in difficulty from the simple centering of short round stock to the setting up of complicated castings on planer or boring machines. In this connection we are trying in Worcester to adapt the best of scientific management to our needs. In doing this we are having the older boys work up standard practice sheets. These will ultimately cover everything that we do in the shops from cutting off and centering the stock to its final assembling. They are being based in the first instance on the judgment of the boy tempered by that of the instructor and later revised in the light of experience.

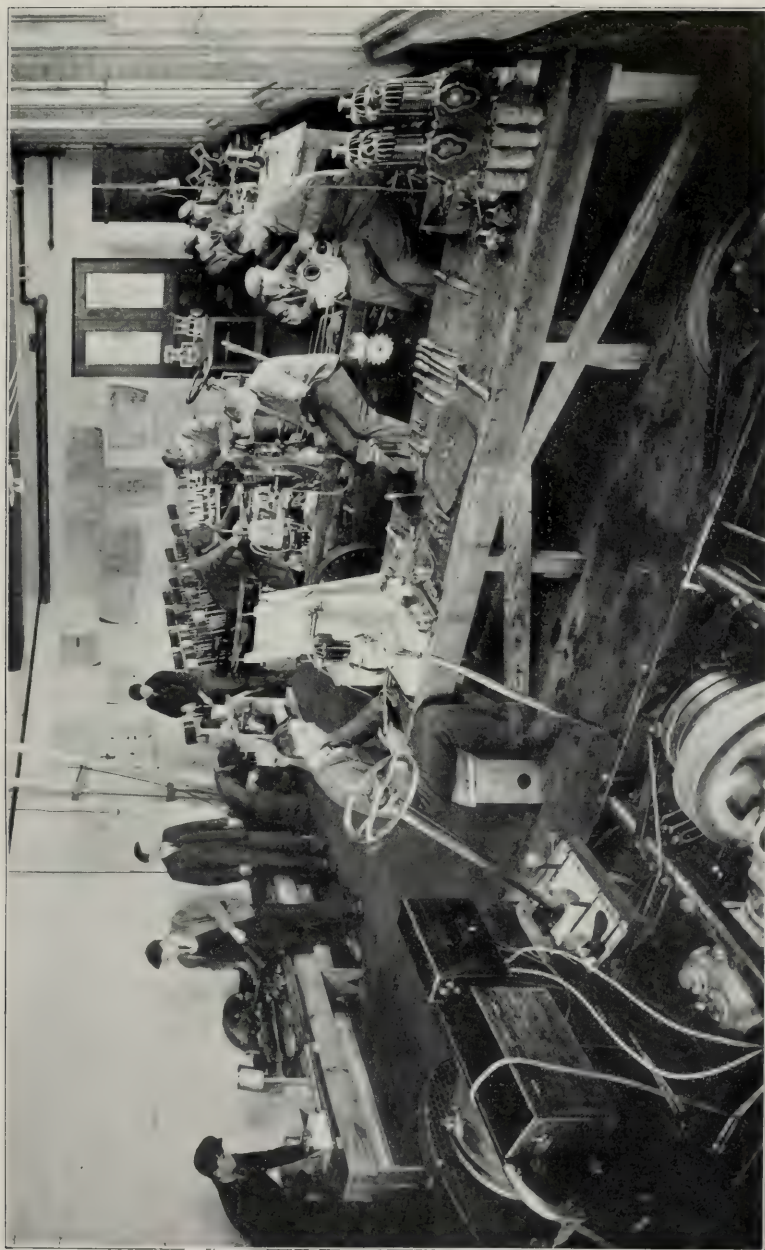


FIG. 6. EVENING CLASS IN GASOLINE ENGINE PRACTICE.

These standard practice sheets will be standard only until a better standard is reached. They represent at no time the ultimate goal but at all times represent the latest experience of boys and instructors. These sheets are made during what we call shop instruction time, which occurs in the recitation week, it being our endeavor to put all instruction of whatever nature in that week and leave the shop week for the gaining of experience. In carrying out this latter part of the scheme we will use the standard practice sheets as a guide to the students and a help to the instructors.

2. Machining. The classification of the chart shows many varieties of machine operations, practically all of which should be familiar to every boy. About half of these operations are found in the courses of manual training and technical schools. They are generally looked upon by the school men as constituting the whole trade instead of merely being one half of a small third of that trade.

The process of finding work of commercial value either for sale or for equipment which shall cover all these operations is really simple. As we get farther on in our work we are less and less inclined to think that it is essential that we avoid competing with local manufacturers. In fact we find that they are quite generally willing to cooperate with us. Among the possibilities of manufacture which avoid local competition we have found:

- Sensitive radial drills.
- Electrically driven drills, grinders, etc.
- Valves.
- Special steam and water fittings.
- Flanges, etc.
- Vises, pattern and machinist.
- Lathe-chucks, universal and plain.
- Drilling-machine vises.
- Hand milling machines.
- Profiling machines.

Work entering competition but unobjectionable.

- Handles for machines.
- Change gears for lathes.
- Tool-posts for lathes.
- Hand-wheels.
- Stock sizes of cast iron pulleys.
- Collar-screws.
- Collars for shafting.
- Lathe-centers.

Work in deliberate competition.

Machine tools and woodworking machinery, for equipment of schools.

We are now working on a hand milling machine which we have designed in such a way that almost every one of these operations is possible in the course of its manufacture, altho to get all these operations it will be necessary for us to make some parts by two different methods, one of which will be a better method than the other. This we do not



FIG. 7. SHOP INSTRUCTION. HERE THE BOYS CAN TURN FROM LATHE OR VISE DIRECTLY TO BLACKBOARD AND BOOK WORK.

consider objectionable inasmuch as we feel that a boy who has been allowed to do work solely in the "best way" would inevitably fall into some of the worst ways of doing work when thrown on his own resources after graduation, much to his and our discredit. By this I mean that a boy who has always been guided is not thereby taught to guide himself, that unless he has at least had an object lesson in the poor ways of doing work he will try them when he is placed on his own responsibility.

MANUFACTURING PLANS.

We have no intention of confining our efforts to the manufacture of any one machine but intend to conduct our work along these lines:

- 9 weeks per year lathe work.
- 3 weeks per year planer work.
- 3 weeks per year milling.
- 3 weeks per year vise and erecting.
- 6 weeks per year drilling, grinding, engine room, and cleaning castings—one and one-half weeks each.

We believe that each boy should go around the circuit of these processes once each of the four years, so for these years we must provide work of suitable difficulty. It will be seen from this that the character of the work which we can do must vary as time goes on until we have run school four years, and it will also be seen that the amount of exercise work used in training may be expected to decrease as the larger variety brings with it a greater amount of simple work.

We have so far followed our methods thru the first eighteen months of a four years' course. While it is impossible to say how they will work out we can say that 75 per cent of the boys who entered over a year ago are still with us, as against 55 per cent for the local high schools and 63 per cent for the country at large. We have turned out in the vicinity of \$5,000 worth of commercial work, counting equipment of salable quality and work in process.

In conclusion let me say that our idea of a logical course in machine work covers:

(A) A line of small machinist's tools, involving a very small outlay for material and consequent small risk of spoiled work and difficulty of sale. This work is especially for beginners.

(B) Jobbing for local shops. This we shall have to confine to overflow work and we must drop it in dull times. There are two large values in this work which make it attractive: 1. The fact that it is inspected by men who are acquainted with our boys and have no interest except to see that the work is right; 2. It brings local manufacturers in close touch with us and our work. On the other hand we do not want to make this a large part of our work because it must be done to a considerable extent when it is wanted regardless of whether it best meets our immediate needs or not. A quarter of our work can be of this nature without harm.

(C) Making of equipment for ourselves, and we hope, by a system of exchange, for other schools as well.

(D) The manufacture for the open market of: 1. Some light fine machinery; 2. Medium weight machine tools or engine work; 3. Rather heavy rough work such as is offered by the local demand for rolling mill machinery.

(E) Jig and fixture work in the last year of the course.

The last of the three divisions of the trade, erecting, we shall naturally have in connection with our manufacturing, but we also are taking second-hand machinery suitable when rebuilt for our equipment.

This we are entirely refinishing and erecting. This work is especially valuable in that it teaches boys ways of doing work without having every facility for doing it. There is no part of our work that is more interesting to the boy than this.

While it is of course impossible to predict the future of this or any other school on the basis of so short an experience, everything points to success. The only trouble that we can see ahead lies in the question of holding the boys to complete their course. We have set this at four years. Experience may show that three years is enough for the brighter boys but we feel sure that for the average boy four years is none too long.

When the boys find that they can get positions at half a journeyman's pay long before graduating there will doubtless be a tendency to accept them which will be difficult to offset without some inducement in the way of compensation. That bridge, however, we shall not cross until we reach it.

"THERE IS NO PLACE IN THE MODERN WORLD FOR THE UNSKILLED; NO ONE CAN HOPE FOR ANY GENUINE SUCCESS WHO FAILS TO GIVE HIMSELF THE MOST THOROUGH TECHNICAL PREPARATION, THE MOST COMPLETE SPECIAL EDUCATION. GOOD INTENTIONS GO FOR NOTHING, AND INDUSTRY IS THROWN AWAY IF ONE CANNOT INFUSE A HIGH DEGREE OF SKILL INTO HIS WORK. THE MAN OF MEDIUM SKILL DEPENDS UPON FORTUNATE CONDITIONS FOR SUCCESS; HE CANNOT COMMAND IT NOR CAN HE KEEP IT. THE TRAINED MAN HAS ALL THE ADVANTAGES ON HIS SIDE; THE UNTRAINED MAN INVITES ALL THE TRAGIC POSSIBILITIES OF FAILURE."—H. W. Mabie.

OPERATIVE STEAM ENGINEERING, AS TAUGHT IN THE DAVID RANKEN JR., SCHOOL OF MECHANICAL TRADES.

H. GILES MARTIN.

IT is not the purpose of this article to set forth theories on education, but rather to deal with the problems and difficulties which have been encountered in the teaching of operative steam engineering at the Ranken School and the solutions of these problems and difficulties.

It must be understood that no attempt is made to teach the higher branches of mechanical engineering, operative steam engineering being but a special branch which may be treated separately and as a trade.

To be a successful operator of steam plants a man needs, first an accurate knowledge of such parts of physics and chemistry as deal with combustion, heat, water, steam, simple acid formations and reactions, oxidation, corrosion, sedimentation, mechanics, etc. He needs also to be able to calculate, and check accurately practically all quantities usually calculated by the designer of steam apparatus. He further needs an unlimited study of and practice with the principal types of steam apparatus and the ability to make detailed sketches of them. It may be said that some of the best operators have had no such advantage as the study of the subjects mentioned and it is true that we see such men about us daily; their success being largely due to an inborn ability to reason along the above lines, basing their solution of problems on a long series of mentally noted facts carefully observed in former experiences. But while these men are eminently successful, what would they have been had they had the systematically arranged knowledge of centuries, covering fundamental principles, drilled into them at the start? For their *best* success they also need this knowledge.

The course of study as arranged for the Ranken School was not developed from other similar courses for the following reasons: First because detailed information was scarce; Second, such information as was to be had did not deal with local or near local conditions, for which conditions this school is primarily intended, altho by no means limited to them; Third, the management concluded that if the course was developed logically by one who had traveled the road of the unscientifically trained operator and had later been technically trained in an engineering college, the school would secure a course adaptable to

the needs of men and boys of limited education with only a limited time to devote to their present training and who must prepare to go into immediate service as safe and economical engineers.

OUTLINE OF COURSE.

As an aid to the intelligent perusal of this article, it is well to give the following topical outline of the course under discussion, as set forth in the catalog:

FIRST YEAR.

- Ia (First Term)—Fuels, furnaces and boilers. History of coal and other fuels. Cost of fuels and their selection. Chemistry of combustion. Physical characteristics of heat. Smokeless and economical firing. Types of furnaces. Steam boiler construction. Types of boilers. Steam boiler troubles. Blackboard sketches of boilers from memory. Calculations and use of boiler formulæ. Steam boiler auxiliaries. Study of current literature and current events in steam engineering.
- Ib (Second Term)—Pumps. Theory of steam pumping. Types of pumps. Valve motions. Valve setting. Water valves. Pipe Connections. Pump troubles. Inspirators and injectors. Calculations. Blackboard drawings from memory. Gauge testing.
- Ic (Third Term)—Steam engines. History and general theory of steam engine. Types of engines. Engine details. Governors. Valve motion. Valve setting. Indicating. Steam engine troubles. Engine foundations. Installation of machinery.

SECOND YEAR.

- IIa (First Term)—Steam turbines. Gas engines. Producer gas. Generators. Motors. Switchboards. Electric lighting.
- IIb (Second Term)—Heating and ventilating. Power plant designs. Lectures and drafting of plans covering the principles of steam heating and ventilating systems and power house arrangements.
- IIc (Third Term)—Continuation of heating and ventilating and power plant designs. Friction. Lubrication. Engine, boiler and pump tests. Elementary machine shop work and electrical wiring for engineers. General review.

Special Course

If the demand justifies during 1911-12 a special course will be arranged for firemen, oilers, dynamo tenders, and others similarly employed who desire to become engineers.

Only those who can show that they have had, or are having, a satisfactory practical experience will be admitted to these classes.

The course will consist of lectures, recitations, and demonstrations covering the fundamental principles and details of steam engineering. These students may take mathematics, drafting and science if they desire.

If possible hours will be arranged to meet the needs of day and night workers.

Supplementary Instruction

Mathematics—Emphasis on boiler and engine room formulæ and problems.

Drafting

FIRST YEAR.

- Ia (First Term)—General use of drawing instruments. Freehand lettering and sketching of machine parts. Geometrical problems relating to the trade.
- Ib (Second Term)—Details of machine parts, valves, pipe fittings, etc.
- Ic (Third Term)—Mechanical drawing of boilers, pumps, engines, injectors, etc.

SECOND YEAR.

- IIa (First Term)—Engine foundations, engine templates, boiler settings, chimneys, stacks, etc.
- IIb (Second Term)—Boiler, engine room, and pipe-line layouts. Heating and sprinkler systems.
- IIc (Third Term)—Continuation of IIb. Tracing and blueprinting.
- Applied Science*—Emphasis on measurement of forces and power; strength of materials; water and steam pressure; water hammer; pumps, siphons, etc.; effects of heat on metals; water impurities; gases; acids; electrolysis, etc.; action of flue gases on steel. Tests of safety valves, gauges, oil, coal, etc.

The department of steam engineering opened with the other departments of the school on Tuesday, September 7, 1909. The equipment consisted of one 60" x 16' horizontal return tubular boiler, one 6 x 4 x 6 Worthington duplex boiler feed-pump, one open feed water-heater, one 11 x 12 x 300 horizontal slide-valve engine with all accessories, one 50 kw. compound wound direct current generator with a four panel switchboard, one electric freight elevator and various motors for driving machinery. This equipment, together with the heating and lighting system (for which it was originally intended), offered practical instruction in the power work of a medium size office or factory building. During the first two years there have been added for instruction and service such apparatus as:

- | | |
|--|--------------------------|
| One 35 h.p. vertical, twin cylinder, throttling governor gas engine. | |
| One 25 kw. generator with additional switch board apparatus. | |
| Several complete single cylinder steam pumps of different types. | |
| Steam engine indicator. | Viscosimeter. |
| Steam calorimeter. | Engine lathe. |
| Orsat apparatus. | Drill press. |
| Draft gages. | Portable electric drill. |
| Gage tester. | Tool grinder. |

In the near future there will be added:

Compound condensing Corliss engine.

Parson's type steam turbine.

DeLaval type steam turbine.

Water tube boiler.

and space and means for temporarily installing various other apparatus for demonstration and tests.

The classes are divided into sections and each section assigned to daily watches; one member of the section being assigned the duties of fireman, one those of engineer, and one those of house electrician; their duties being changed each day so that each student regularly performs the routine duty of each member of a power plant crew. While one section is thus gaining practical experience the alternate section is studying or attending class either in steam theory or supplementary work.

The instruction in practical work is given by a competent licensed engineer who is in close touch with every part of the plant at all times.

THEORY AND PRACTICE.

The steam theory has been so coordinated with the steam practice as to gain the best result; that is, special emphasis is laid on that part of the practical work which is under discussion in the classroom, the two instructors working hand in hand.

The logical beginning for the study of steam engineering is the coal pile. As will be seen from the outline given above, instruction is given not only in comparison of thermal values of different kinds and grades of coal but stress is laid on their economic values, considering the location of a plant, kind of help to be employed, and various other conditions. Thus it is hoped to give these future engineers sufficient knowledge of their employers' commercial conditions and methods as to enable them to harmonize the engineering department with the entire business organization. Cost data is given to the students as far as possible together with simple systems of estimating.

The determination to enter the above points in the course was the result of the observation of the deplorable lack of information on such matters shown by most operative engineers. Such lack of knowledge often results in the superintendent or commercial manager setting aside the engineer's recommendation as being a mechanic's ideal and themselves going to the other extreme and missing the point of maximum

economy. This condition is well illustrated by those frequent cases where an expensive power plant is exposed to dust or moisture; the engineer's recommendation in such a case usually being regarded in the light of a complaint rather than as a recommendation of economy and safety.



FIG. 1. CLEANING FIRES.

It is the object of this school to prepare men to harmonize the work of the various departments in industrial organizations, and thus bring better conditions and results for both employee and employer.

The next point taken up in theory is the chemistry of combustion. It is here that the technically trained teacher must use his greatest ingenuity in order to convey to the comparatively unschooled student a clear idea of simple atomic and molecular actions. These subjects are best presented by methods sometimes called "kindergarten" methods, used, however, by some of the best college professors; that is, comparative object lessons.

This school does not attempt to go into the field of chemistry further than to give the above mentioned idea of simple atomic and molecular actions such as occur in the combustion of carbons, gases and like matter, and the several physical changes which may occur in

water, petroleum, etc. While this part of science is being dealt with in the classroom and the different stages of combustion made clear, the boiler room instructor is training the eye to recognize these stages of combustion and is giving hard drills on the adjustment of the air supply and proper cleaning and care of the fires (Fig. 1). The fires thus become a most interesting scientific process to the student. An interesting fact which developed at this point of the course has held true, with but one exception, ever since; namely, after receiving this combined theoretical and practical instruction in firing the student prefers to clean fires, load up, wheel his coal and ashes and clean boilers rather than do the work of the classroom, study hall or drafting room, or even the restful work of watching the engine.

The point has frequently been raised of the practical necessity of teaching engineers the science of firing, it being suggested that this branch of the work is applicable only to firemen, but investigation has developed the fact that while the smoke conditions and fuel waste are due to untrained firemen, the best method of training them is thru well trained engineers. How can we expect them to accept instructions from men whom they know have never been in front of the fires or felt a clinker? Most of our engineers, having risen from the oiler's job and but few from the boiler room, are unable to combat this difficulty.

Right here it might well be said that the school urges upon the student that he be "BIG" enough to give knowledge to others rather than selfishly retain what has been unselfishly given to him; that every effort made by him to teach others will develop his own knowledge.

OPERATION OF FURNACES AND BOILERS.

The next part of the course covers the study of various types of furnaces and boilers. In this work the school is greatly assisted by engineers and power plant owners who have given the instructors and students much liberty in inspecting their apparatus while "dead" and in operation; even allowing the instructor to give the students a "run" at firing to thoroly acquaint them with the advantages and disadvantages of the apparatus. During the study of the management of furnaces and boilers, the general principles of design, strength of materials, and like topics are taken up in the engineering class; not with the idea of making designers of the students, but, by passing beyond the limits of their future field of work and somewhat into the field of the correlated

professions, they will thus not only be fully prepared to work within their own field but to intelligently cooperate with the technical engineer where their work meets.

In the second term of the first year the subject of steam pumps is taken up and has proven most interesting to the average student. It has been a necessary tho not hard task to disabuse his mind of its childish notions regarding hydraulics, the theory of which is easily given by simple, diagrammatic development, followed by experiments with stand pipes, pressure gages, etc.

As mentioned above, the equipment of the engineering department includes several makes of pumps from which the student studies the various valve motions by dismembering the pump and making sketches of the passages and ports. This is followed by blackboard sketches of the assembled pump from memory. The pump is then connected and placed in service and practice given in adjustment of the valve motion.

The study of auxiliaries is taken up at such times during the first three terms as offer the best advantages; such opportunities being offered when different parts of the plant are shut down for other purposes. Thus the student is incidentally taught to overhaul every part of his plant at opportune times and to minimize "shut-downs."

THE STEAM ENGINE.

The subject of steam engines is begun by the history of the development of the steam engine, followed by discussions of the advantages, disadvantages and details of construction of various types and makes of engines. The method of teaching this subject is in general the same as for boilers and pumps, the detailed topics being given in the outline above.

The subject of valve diagrams has been omitted so far, as its value to operative engineers is still under discussion by the management. Valve setting is, therefore, at present taught only from the mechanic's standpoint *with* and *without* the use of the indicator.

Thermodynamics of steam engines is also under consideration and will possibly be given in an advanced course. The subject of steam turbines is but a continuation of the study of steam engines. The theory and operation of gas engines are included in the course because of the present local importance of the gas engine as a prime mover.

In teaching the electrical portion of this course only the elementary

fundamental principles having to do with the generation of electricity and its direct application to lamps and motors are taken up. A few essential principles of electrical wiring and repair work are taught, as is also the care and handling of primary and storage cells. A number of interesting and important experiments are carried on; such as the conversion of shunt and compound motors into generators, making of solenoids and the like.

The methods of calculating capacities and the general principles of arranging power plants and heating systems are gone into in the engineering classes and taken up in detail in the drafting course. The study of friction and lubrication has been carried on in a simple and interesting manner.

Analyses of flue gases (see Fig. 2), tests of moisture in steam, viscosities and flash points of oils, prony brake and indicator tests and complete boiler tests are emphasized in detail, owing to their practical application to operative steam engineering, and it is hoped that the future engineers will be prepared to operate their plants at the highest point of efficiency.

The practical importance of teaching the viscosities and flash points of oils has been questioned, but it has been considered that without a knowledge of these two subjects the engineer is at a great disadvantage when dealing with oil men or their agents. The experiments are made as simple and the results given the most practical application possible.

As will be seen from Fig. 3, the prony brake test was made with a home-made brake of the simplest construction, it being considered important to make the apparatus a minor consideration in all experiments, save as regards strength and accuracy.

DRAFTING.

As outlined, drafting is given thruout the two years. Individual attention is given to each student in this branch of the work also. Just as soon as he attains the simple use of pencil and instruments and the ordinary geometrical methods of drafting, the student is assigned a small amount of "copy" work from exemplary drawings to familiarize him with methods of representation. He is then assigned simple objects to measure and draw, full size and to scale. Each new object is of increased difficulty in order to develop ability to comprehend accurately the details of the object and to so represent it to others. The artistic effects of shading and lettering are made secondary to the



FIG. 2. FLUE GAS ANALYSIS.

more important points of neatness and accuracy; *methods* of accuracy being taught.

All objects of drawing for engineers are so chosen as to supplement and assist the work of the engine room instructor; the detail drawings of steam pumps familiarizing the student with the important details of construction and developing his ingenuity for making or specifying alterations and repairs.

The instruction in mathematics has developed many interesting facts with practically all students. It has been found advisable and very helpful to thoroly review any mathematics he may have had even back to simple arithmetic and to give him exercise in these same principles as applied to his chosen trade.

Many students coming to the school supposedly handicapped by lack of ability to comprehend mathematics develop wonderfully when the classes are so arranged and the problems so chosen and applied that the student is interested and understands the physical meaning involved, and is thus led to *reason* mathematically.

In the applied science course all instruction and experimental work is given with the simplest apparatus available, such as draft gages made from plain glass tubing and standardized with factory made gages. In all experiments such as pulleys, tackle blocks, expansion of pipes, etc., in which the theoretical principle is always accompanied by friction, stretching, and other theory opposing conditions, the experiment is given with such conditions normal and with the usual magnitudes found in practice, in order that the student may realize these magnitudes and distribution of forces and the positive truth of the principle involved in the experiment.

The object of the science course is to demonstrate principles and to impress upon the student's mind the important bearing of scientific theory upon his trade.

To illustrate the simplicity of some of the chemical experiments: The effect of coal soot upon boiler steel is demonstrated by carefully weighing a number of small samples of sheet steel and placing them respectively in dry soot, wet soot, dilute sulphuric acid and the open air, observing and weighing them at weekly intervals. Simplicity of demonstration is an aim thruout the entire course.

Referring to the principles previously stated whereby the boundary of the operative engineer is overstepped and the work touches upon that of the technical engineer; the necessity of this principle has been

recently demonstrated very strongly to the writer in an instance where a very well-known and successful operative engineer attempted to make an approximate boiler test of a local plant and was unable to explain to a very practical superintendent the proper technical method of measuring the draft and was much bewildered by the great variations of his readings; likewise with the flue gas analysis, horse-power, and efficiency. Had the technical phases of this engineer's work been in his possession in simplified form his difficulties would have been eliminated, for he was one who could have then reasoned his way.

It is the aim of this school to develop its own textbooks in the form of compiled daily lesson sheets from the direct and supplementary classes of each department.

The textbooks used in our colleges and universities seem well adapted to students who have had proper preparatory training, but are not adapted to those who wilfully, or thru misfortune, have not acquired the necessary preparation. Hence there has arisen in trade school work a great necessity for textbooks covering each topic of the various courses, and these topics should be covered completely and individually by one author, if possible, and that author so versed in the subject that he can easily and accurately express himself within the understanding of his reader. In other words these books, it seems, should be written by one who having gained a thoro technical knowledge of the subject has afterward "rubbed against" these men of limited education and has become thoroly acquainted with the conditions under which they work.

A great many text books, hand books and encyclopaedias of engineering have been investigated by the Ranken School authorities. In most instances these books have proven to be a compilation of papers on various engineering subjects, written by experts on each, with an attempt on the part of the compiler to correlate them. In a great many instances the work has thereby failed to accomplish its purpose and, worse still, many misleading and apparently contradictory statements have been made. Such books are accepted by many as authentic—based upon their apparent authoritative source—but prove only a handicap even to graduate technical engineers and the result of their perusal by students of a trade school is bewilderment. It should be stated, however, that some of these books have been well arranged and that recently the publishers have been devoting energy to the development of accurate texts for the man of limited preparation.



FIG. 3. PRONY BRAKE TEST.

NIGHT SCHOOL.

During the night school season of 1910-1911 a class of about twenty-five men, varying in age from seventeen to sixty-five, was organized to meet the demand for power plant instruction. These men were employed during the day as oilers, firemen, dynamo tenders, machinists, and others who were desirous of becoming steam engineers. In a few cases these men preferred only to be "coached" for licenses by the old catechism methods (which practice is condemned by this school), but were persuaded to enter upon the study of fundamental principles. While the course was new and unplanned at the time, the needs of the class were evident and a course of lectures, discussions and demonstrations was laid out for twenty-four weeks of two two-hour sessions each and covered the same topics given in the first year of the day course in steam engineering theory. On account of the intense interest and determination of these night students, it was possible to cover ground very rapidly by giving them at each session condensed notes and data covering the topic under discussion with outlines for study. The daily occupation of the students was also a great help in that they had a good idea of the apparatus, material and conditions dealt with. Also, a great many of the students assisted the class by giving the results of their experiences when class discussion was in order.

The tired physical condition of these students required careful consideration and the lectures were so given and the atmosphere of the classroom so regulated as to minimize fatigue. It required a great deal of tact on the part of the lecturer to so arrange the engine room demonstrations, the blackboard work, the stereoptican illustrations, and the bringing out of interesting phenomenal points, that the class was constantly "up on its toes." The light or its absence, the air, the tone of the speaker, as well as the subject matter, all had much to do with the success of keeping their minds on the subject and preventing the slipping by of an essential principle. The constant attendance and lack of sleepers were an encouragement to all.

The results with this night class have caused the management to announce a detailed and thoro course of study to meet the needs of such men; the same scheme of theoretical instruction and demonstration as just described to be given thruout the year at such hours, day or evening, as shall meet the requirements of the members of the class. Additional work will be given in drafting, mathematics and science; thus covering in time the same field covered by the day classes and thereby placing

the use of the expensive equipment of the school within the grasp of a much larger number of men than can be successfully handled in the regular system where the student is "green" in practical experience and is dependent upon the necessarily more limited amount of work offered by the school plant. With the course just mentioned the student gains his practical experience while earning his livelihood, and also all the benefit of the equipment of the school in the demonstrations, inspections and tests. In this connection, it might be stated that there is a great tendency for the young day student to leave the school at the end of the first year, realizing that he is well equipped to do the work of an assistant engineer, and, since he cannot secure a city license until twenty-one years of age, he optimistically postpones the consideration of the higher studies of the operative engineer in his great desire to be a wage earner.

There is a need and a demand at present among the older practical engineers for instruction in mathematics, drafting, simple engineering tests and machine shop practice. The school hopes to meet this demand in the near future, probably upon completion of the second building; plans for which are now in the hands of the architects.

Thruout this article nothing has been said of refrigeration, locomotive and marine engineering or oil engines. These are subjects to be considered in the future and attention is called to the fact that the present status of the school is the result of but two year's work.

It is hoped that the article will prove helpful to kindred schools and that competent persons will make their criticisms known that all may benefit.

"THERE IS NO GREATER BLESSING IN THIS WORLD THAN A STEADY JOB, WITH INCREASING EFFICIENCY AND HENCE INCREASING WAGES AS TIME GOES ON; AND THE ONLY WAY TO INSURE THAT HAPPY STATE FOR EACH INDIVIDUAL IS TO GIVE HIM THE TRAINING FOR SOME SKILLED VOCATION IN LIFE, WHETHER IT BE IN BUSINESS, IN A TRADE, OR IN A PROFESSION."—Paul H. Hanus.

EDITORIAL

ONE of the most interesting and suggestive factors in the problem of vocational education is the opposition offered by the conservative educator. His attitude toward the movement varies from open hostility to entire indifference, and it is difficult to say which has proved the greater obstacle. Whether the ultimate result of this opposition will be beneficial or detrimental to the cause is a matter of opinion, but the opposition itself is not a matter of opinion,—it is a fact.

**Conservatism
and
Vocational
Education**

The opposition is based on the belief that there is *one best education* which all, who possibly can, should be induced to obtain, and it is feared that any influence which may deflect children from the traditional path, will do more harm to our plan of general education than any vocational benefit to the individual can possibly offset. The conservative educator believes that our complete training for life is the result of *all* our experience and that the legitimate function of the school is to supply only a very definite fraction of that training; that the school should not attempt to give the education which the church, the home, and the vocational and social life can provide much more effectively. He feels that the school should stand only for the widest possible dissemination of general culture.

The discussion at the last annual meeting of the Harvard Teachers' Association, a full report of which appeared in the *School Review* for September, clearly illustrates the confusion to which dogmatic adherence to this view may possibly lead. The topic, "Does the Present Trend toward Vocational Training Threaten Liberal Culture?" is one in which educators thruout the country are keenly interested. While one reads the addresses with much pleasure and profit, he is not led appreciably nearer a conclusion regarding the question discussed.

There are many today who will agree with Locke that every effort should be bent to "training up youth, with regard to their several conditions, which is the easiest, shortest, and likliest to produce virtuous, useful, and able men in their distinct callings; tho that most to be taken care of is the gentleman's calling. For if those of that rank are by their education once set right, they will quickly bring all the rest into order."

There can be no question that the movement to vocationalize the work of all grades of schools is gaining momentum. It is equally evident that, under the older educational régime, many men have risen from what some call the lower strata of society to commanding eminence and great usefulness by virtue of the uniform educational opportunities which the public schools have offered, and have thus become "gentlemen" according to our democratic conception of that word.

**Does Early
Vocational
Training
Limit Later
Opportunities**

It may well be debated whether the benefit to be derived by a community from giving a modicum of industrial work to one hundred children, for "bread and butter purposes," will compensate society for the loss of one "gentleman" should such practice divert him from the path which leads to "liberal culture." Is this not, then, the only question at issue, namely, whether the giving of opportunity for vocational training to the many limits or jeopardizes the opportunities of the few to rise, by means of "liberal culture," and thus to better serve their fellow men? Unless such curtailment of opportunity for the exceptional is to be found in the widening of the educational opportunity for the many, it appears to us that there can be no possible way in which the movement under discussion can retard liberal culture.

That the speakers held widely differing views regarding the meaning of "liberal culture" may be seen by comparing the quotations which follow. The last two, both from Robert A. Woods, South End House, Boston, furnish another illustration of the fact that education is frequently a debtor to the social worker.

"I think that the phrase is well chosen; we know when we are talking about vocational education that we are talking about education from the point of view of earning one's bread."

"Not one of the things said this morning has convinced me that, so far as the old curriculum is to be reduced in order to provide room for the technical subjects, that it is not going to threaten liberal culture. If a boy has six units of time and energy to devote, and you take three and give them to teaching him shorthand, typewriting, and carpentry, he is going to have only half of his time for those studies which are of no use in money-making, but are of enormous use in other respects."

"As regards the universities, I think the majority of the western state universities which I have ever seen are overdoing the vocational side. They are distinctly an immense allied set of vocational schools. To be sure you can have cultural courses if you want them, but the great mass of work is done in engineering, agriculture, or other technical departments. These things must be done, and the state university has the right to do them; but my point is that

it would be better if it were not necessary for so many young men to come to Harvard to get their cultural work. There is no reason for it. There are brains enough and money enough in any of the middle states to equip departments in the state universities which should be strongly and fully and highly cultural. But this has not usually been done. I think one reason why it is not more thoroughly done is that it would be hard to come before the state legislature and appeal for money for a cultural department with as much chance of success as for the technical ones. So I think Harvard for fifty years to come may draw boys from many of the middle and western states for various reasons, largely because there are nearly three centuries of culture here."

"That the present trend toward vocational education—technical, commercial, agricultural, domestic, and even vocational in the narrower sense—will undoubtedly force a more general acceptance of new definitions of what constitutes liberal culture can hardly be doubted, but that it will do ought to increase the number, either actual or proportional, of persons possessed of a good sound education may well be doubted."

"All enrichment of a program of general education that simply takes a small share of the boy's time should be interpreted as a phase of liberal training."

"I should divide education into three kinds—cultural, liberal, and vocational. Cultural education may be defined roughly as education which prepares us for the leisure associations of our lives. Liberal education is education which prepares us to enter profitably into those relations in which we are workers, but not into the one central relation of our lives which we call our vocation; it is preparation for the serious duties which come upon us outside of our main work—duties as members of the family, of the state, and of the various voluntary organizations. I enter, for instance, into a civic organization to do a definite work. That is not my vocation, but an avocation; yet it is not a matter of leisure. It is not play but work. Various duties of that kind fall upon every one of us, and liberal education I should define as education which prepares us for those duties. Vocational education prepares us for the one central work in life which supports us."

"If the vocational school were to be filled with the boys and girls who otherwise would have left school, we all agree that it would be a very good thing, and anyone who knows the ideals of the vocational school knows that it is apt to be more favorable to culture than the ordinary workshop. Teachers are people of higher refinement than foremen of workshops. So the vocational school as an *addition* to the educational system is no threatening of cultural education but, on the contrary, a distinct strengthening of it. I cannot see any reason to discuss that further, for it seems perfectly plain."

"What are we to understand by 'liberal culture?' I maintain that the essential of liberal culture is a broad human sympathy. And there are two elements in that: first, knowledge and appreciation of human achievement in a broad way; and second, the power and will to serve humanity."

"The great reason, certainly from the point of view of the social worker, why the new ideals of vocational training are not going to undermine the broadly cultural conception is that we have in these days what is practically an entirely new conception of what vocation is. The reason, I think, why

manual labor has been looked down on in the past, why a certain few vocations have been considered the privileged vocations, why education was considered to lead to them almost exclusively was that those vocations had about them the dignity of social service. They were not thought of merely as ways by which one could eke out a livelihood. Now we are coming to see today, under the new social conception, that every kind of calling not only has before it the possibility of having the dignity of social service, but that it must more and more be considered by everybody as having value in so far as it renders social service. That conception raises every calling into a wonderful new significance. It brings into and places all about it that broad atmosphere of being in touch with a larger life. It gives it that note of humanity which is supposed to distinguish culture."—(WOODS)

"The greatest educational good of the greatest number was never sufficiently developed under the old cultural point of view. It was really a leisure-class ideal; an ideal which had to do with the progress and prosperity of certain so-called liberal professions; an ideal which, developed out of aristocratic conditions, always looked askance at, if not down upon, manual labor; an ideal which greatly emphasized the consumer as against the producer, and thus tended among great sections of the people not only *not* to equip them for the struggle of life but in some sense to sidetrack them: for a great many of our most serious moral and political evils come from the fact that our scheme of education is so accentuated on the side of the consumer and so weak on the side of the producer, fitting out our whole body of young people with a complicated variety of wants and no equipment of developed capacity to enable them to meet those wants. Whenever that unbalanced sort of condition exists in a person's nature it makes that person essentially a gambler. He wants in some way or other to get something for nothing. He has not really been trained to see that the great joy of life is not in consumption at all but in production. The productive motive is the great note that is being emphasized by the vocational movement in education. And from that point of view it represents a wiser and sounder and broader and more real form of culture than we have had in the past."

—(WOODS.)

In the light of the opinions expressed in these several quotations, is there not justification for feeling that, after all, culture is inherent in the habit of thought, and that many diverse ways may lead to that breadth of view and that emotional recognition of the fundamental life interests of mankind which marks the twentieth century "gentleman?"

The statement of the main question would seem to intimate that there is a possible antagonism between vocational education and liberal culture. To us there appears to be no such antagonism except as it exists in the minds of the over zealous advocates of one or the other kind of education (and extremists are to be found in both camps) and as it is seen in the tendency of each group to exclude the other from

its own sphere, and to regard its own body of thought as all-sufficient. The fundamental importance of combining *both* elements in any adequate educational scheme is happily gaining general recognition, and this thought is the basis of the new conception of vocational education.

—FRANK M. LEAVITT.

**Principles
Enunciated
by Dr.
Kerschen-
steiner**

A word with reference to the man. Many were happily surprised at the breadth of his thought. Some had expected that he would merely discuss such topics as "the need for skilled workmen;" "the progress of a nation depends upon its material wealth;" "the supremacy of a nation depends upon its industrial efficiency;" etc. Such topics are usually associated with the German system of vocational education.

However, we forgot two things: (1) That Dr. Kerschensteiner came from Bavaria, which, altho a part of the German Empire, is in reality very different from the northern state of Prussia. Southern Germany is made up of wholesome, simple-minded people who are less strenuous in their commercial and industrial activity than northern Germany. They do not think quite so much about the economic importance of affairs as they do about the human importance. (2) We forgot that many German teachers are men of broad interests. Dr. Kerschensteiner is an artist, musician, and teacher as well as an organizer of schools. To visit his home and see the material evidences of his simple philosophy of life, to see the products of his handiwork, to note his breadth of view as judged by the range of subjects in his library, and to listen to his broadminded discussions is to gain a new idea of what a liberally trained man can do to broaden a vocational education movement.

His words at one of the meetings of the National Society for the Promotion of Industrial Education, "The development of skill has as its first object the development of a man's own joy in work and thereby of his joy in life," is still ringing in our ears—a splendid philosophy and expressed by a simple-minded man. His Munich boys learn that true joy in work can only grow out of real capacity for it; not merely out of the storing up of joy for one's own sake but the teaching in the school of uniting readiness of service, consideration for others, and loyalty for the sake of the community itself. He pointed out to us that skill and joy in work were the easiest qualifications to develop. In other words, that the development of personal capacity is not

difficult of attainment. But beyond this task there still remains the larger field in education—the field of educating people to a responsiveness to service, which will lead them into an insight into the aims of the body politic itself.

He made it clear that while division of labor is a vital element of industry it is not true that industry per se is the aim of human society. The aim of the latter is the increase of justice and culture.

Looking thru the large end of the industrial telescope we see that industry deceives itself in the belief that it requires immature youth in its factories, that parents need the money which these children earn, that the necessities of the moment are greater than the real needs of the future, that drifting from job to job is one way of finding oneself, and that automatic machines always mean industrial progress.

But there is another way of holding the microscope so as to see things in a larger view. The state requires that its youth between fourteen and eighteen years of age be engaged in work profitable to body and soul as well as to pocketbook, that immature children must learn as well as earn, that knowledge of the government of their country is more important to them than the opportunity to turn a lever or shift a belt ten hours per day, and that to be able to read a drawing means as much to the boy who is to be an industrial citizen as his present ability to punch a time clock.

Dr. Kerschensteiner pointed out that there seemed to be no escape for the child from the natural fate of industry except thru state intervention—that it is the business of the state to supplement the one-sided education afforded by industry and trade thru broader training within the school, not merely, as some are lead to believe, for the industry itself but for the vital interests of the community.

Purpose of the Continuation School He would not have it the object of the continuation type of vocational education to replace the training now given in the practical work of the factory. To his mind it is quite impossible to replace that practical teacher—experience—a hard task master and yet an efficient one—with trades schools that teach trades to all youth. Such a scheme in his mind would remove all youthful workers from workshops, offices, and factories. Instead he would continue the elementary school so as to accompany its boys and girls thru their apprenticeship to a trade, not forgetting as do our schools in America that the springtime of the lives

of our boys and girls is spent as day laborers, messenger boys, and unskilled workmen, "far from the Paradise;" as he termed it; of "joy in work."

These continuation schools fulfil two purposes: (1) youthful workers and apprentices are still at the disposal of trade and industry, and (2) no citizen of the state is left without an education extending to his eighteenth year. In this connection it is well for us to remember that 96 per cent. of the children in the city of Munich are a part of a systematic educative process until they are eighteen years of age.

The completeness of the continuation school idea depends upon the means which the state can provide for this purpose and on the sacrifices which trade and industry are ready and able to make. This is the kernel of the whole matter. The state must provide the means and the employer must make the necessary sacrifices.

To increase the child's joy in work Dr. Kerschensteiner believes it necessary to place the practical work which the pupil is doing in the commercial shop at the center of all other school work; and by teaching the pupils to execute it as thoroly as possible, to think out the processes of the work and to give reasons for them, to make them masters of the processes. It is the business of the continuation school to group all teaching around the practical work thru special workshops, laboratories, and drawing rooms. All other teaching—commercial, scientific, artistic, and moral—must be brought into intimate connection with the former, keeping in mind all the time that the school must always remain on the firm ground of the real life by which the pupil is daily and hourly surrounded.

He believes that such continuation schools should be made compulsory. Everyone recognizes the necessity for a certain amount of culture for all citizens of the state. This is at the basis of our present compulsory education laws; but Dr. Kerschensteiner would go further and claim that the same recognition from the state must be given to the value of and the necessity of compulsory vocational education.

He emphasized the fact that continuation school work was a day-school proposition and not an evening affair; otherwise the teacher has to deal with a will weakened by factory fatigue, and a pupil otherwise unfit for the best school work. The manufacturer must make his sacrifice and let the boy go to school for a few hours a week. He told us how every employer is put under obligation to dismiss his apprentices from work at the hours appointed by the town under penalty of a fine.

**Civic
Education
of the
Continuation
School**

Not only did Dr. Kerschensteiner lay down fundamental principles of the contribution these schools would make to intellectual and technical training but he also emphasized the service they must render in civic education. This statement rather surprised some of us because we have been so in the habit in America of discussing vocational education from the standpoint of increased skill and the mere rudiments of mathematics and English as applied to the trade studied.

Dr. Kerschensteiner would have the instruction organized as early as possible from the standpoint of a free community of labor. In other words, the practical work should lead in itself to the association of many hands for a common purpose. Of course, he would have us keep in mind that in taking up the elements of a subject it is necessary to limit the instruction to the securing of individual progress. Obviously, the pupil must attain a certain degree of efficiency before he can join a group for purposes of common action. But the whole plan must be to turn as much school work as possible into work that can be done in common and in this way serve the social idea.

But beyond the school there is the employer. He must be interested in the social idea. The imposition of a law simply obliges him to obey. If the boy is to be interested in the school rather than forced to go to it, so also must the employer have the spirit of cooperation. In Munich there is attached to most of the vocational schools an association of employers who bear the expense of school material, take part in the discussion on the plan of instruction, assist in the supervision of practical subjects and help to spread interest in the school and further its development.

To sum up Dr. Kerschensteiner's philosophy from an American standpoint; it would seem to be that the contribution which vocational education may make toward the preservation of our states from the dangers that threaten them thru their own economic, social, and political development is to develop in our people a new social consciousness. For the children this means that they are to be accustomed from their earliest years to do their work not only for their own personal advantage but also for the advantage of their companions. For the employer it means that he is to support freely, as well as to obey grudgingly, the laws regarding child labor; that he is to aid with his head and heart the development of vocational schools as well as to merely pay the additional school tax; that he is so to develop his in-

dustry that it will show not only a profit to the stockholders but that larger and more important profit which may accrue to the community in the increase of human as well as material wealth. Then, and only then, will the child and the employer contribute to an industrial democracy that exists in a country "whose wealth," to quote Dr. Kerschensteiner, "depends not only on the material riches of its soil but also on the men who turn these riches to account."

—ARTHUR D. DEAN.

The Educational Work of the Chicago Commercial Club The Commercial Club of Chicago deserves much credit for the liberal and practical support it has long given and is still giving to industrial education. Many of our readers will recall that it was this club that organized and financed the Chicago Manual Training School from its incorporation in 1883 to the time it was turned into the melting pot at the University of Chicago. They will also recall that the school was established as the direct result of one of the club dinners when the subject for discussion was "The need of a school for industrial training in Chicago." The school thus established and supported was a great force in breaking down the prejudices of schoolmen against manual training. By maintaining a high standard of scholarship combined with excellence in technical work, its influence was far reaching.

When the present movement for vocational education pointed toward Germany as a source of valuable information the Commercial Club secured the services of Dr. Edwin G. Cooley, formerly superintendent of public schools in Chicago, sent him to Europe for a year to study schools, and has now established him in an office in the People's Gas Light and Coke Company's building, just across the street from the Art Institute, where he is preparing exhibits and reports, writing articles, and giving out information freely. His office is a center for information concerning vocational education.

In connection with this effort to bring the best European ideas on vocational education to America the Club secured the first English translation of Dr. Georg Kerschensteiner's prize essay, "Education for Citizenship," published it in book form and distributed three thousand complimentary copies among educators, public officials and business and professional men throughout the country. A little later the club sent out a large number of copies of the lectures delivered by Dr.

Kerschensteiner while in America. The club is planning a similar distribution of the reports and other writings of Dr. Cooley which are being prepared as the result of his investigations in Europe.

Exhibit of Work from Germany On the ninth of September the Commercial Club, working in cooperation with the Art Institute, opened in one of the Art Institute galleries an exhibit of work done by students in the continuation schools of Europe. The examples of work shown had been gathered by Dr. Cooley to help him in making clear to the people of America, and especially of the city of Chicago, the character and quality of work that may reasonably be expected of trade apprentices. This exhibit included courses in benchwork in wood, wood-turning, and wood-carving from Munich. From the same city came examples of work in coppersmithing, tinsmithing, cornice making, printing and lithography, also many drawings and a fine collection of photographs showing interior views of continuation school shops. From Prague were shown drawings of building construction, and from Frankfort was a large collection of drawings representing several trades—glass-workers, electricians, machinists, plumbers, drapers, gardeners, shoemakers, and cabinet-makers.

The exhibit had not been open an hour before a request was received by Dr. Cooley to allow it to go to Los Angeles. We hope that the Commercial Club will let this exhibit go from city to city during the year, so that it may do as much good as possible. We hope, too, that it may be displayed at some of the meetings of associations of teachers. The lesson of the exhibit for Americans is not in the technique of the drawing, nor is it largely in the quality of the handwork shown, but it is in the adaptation of drawing to the several trades represented. It is not an exhibit of courses that Americans should copy, but it is an exhibit full of suggestions to those who can take them.

—C. A. BENNETT.

Demand for Accurate Data Inspired by the example and achievements of others, a goodly number of supervisors of manual training will conduct experiments in industrial education during the year. When they come to decide upon the details of the work to be attempted, and seek for information as to just what has been established by previous experimenters, they will feel the force of the complaint, expressed in the Report of the National Education Association's Committee on the Place of Industries in Public Education, that there is

"great difficulty of obtaining verified data," and that there has been "relatively little advance in the way of detailed working-out of curricula, organization, and procedure." To paraphrase the pronouncement of the chairman of the Committee, we are accumulating a disproportionate wealth of unintelligent opinion without an adequate body of supporting facts.

**Kind of
Records
Needed**

The very ones who suffer most from the lack of available data are, collectively, the ones who are responsible for the condition. The workers engaged in planning and conducting the experiments are naturally the ones most concerned about their success. For their own sake, and for the sake of the cause, they should keep accurate, not necessarily complicated, records of the work. The general criticism of our public school methods that the teachers are already overburdened with demands for elaborate and useless reports probably does apply in full force to the conditions under which most supervisors of manual training work. They are themselves, to some extent at least, judges of the amount and kind of records to be kept.

The opportunity for constructive work in this direction is wide open before the supervisor who is trying out new plans with his classes this winter, and the need is urgent. A real service to the cause of education will be rendered by the one who will devise and demonstrate a simple, easily applied, test, or series of tests, by means of which the part that the industrial arts play in the development of the child may be estimated and recorded. Vocational education must look to the *school* man for this contribution, more than to any other interest, as, the manufacturer, the workingman, the sociologist, or even the artisan teacher.

—WILLIAM T. BAWDEN.

OF CURRENT INTEREST

VOCATIONAL EDUCATION FOR THE EMPLOYED.

The provision made for instruction of the employed is one very interesting phase of vocational education. That there is a demand for more schooling among the workers is evidenced by their promptness in availing themselves of the opportunities when offered. To be sure, many employees who need such instruction are too immature to realize their need, but when the manufacturers or business firms have pointed out the advantages to be derived from more schooling they have been glad to enter vocational classes. There are two main divisions of school work which serve the employed, the continuation schools and the evening schools.

The continuation schools afford instruction for a limited time during the working day, the employee being released for that period by his employer and suffering no reduction in earnings. Many of these day classes are opened at the request of the employers, in some cases the classes being held in some room connected with the manufacturing plant. In other cases, the instruction has been made possible by cooperative arrangements made with the manufacturer by school authorities, the initiative having been taken by the school. Two cities are especially prominent in this matter of continuation schools: Boston and Cincinnati.

In Cincinnati the part-school, part-shop arrangement originated with the University cooperative engineering course. The favor with which manufacturers regarded these engineering students suggested to the people of Cincinnati the possibility of cooperation in other ways, such as with the college of medicine and the college of teachers. As an outcome of this spirit of cooperation came the continuation school. The city saw a way to help the hundreds of boys in the industries who were otherwise forced by the need of earning a living to a career of comparative inefficiency with consequent low earning power. In 1909 the continuation school for machine-shop apprentices was started with a school room and instructor, J. Howard Renshaw, secured from a factory which had been maintaining a school for its apprentices at its own expense. Two hundred pupils were enrolled at the beginning. There are now fully six hundred enrolled. Mr. Renshaw had for equipment to begin with a few sets of blueprints and machinery catalogs, but he made these do. It is to his ingenuity and resourcefulness that much of the success of the school is due. Mr. Renshaw was a mechanic, thoroly conversant with shop practice, when he became interested in teaching. After making preparation for the work of teaching he returned to teach apprentices in the shop. He combines the very qualities which are being sought by directors of vocational work. So rare are such teachers that the demand in Cincinnati is to be met by men trained as assistants under Mr. Renshaw. The school has a four-years' course, each pupil having a full days' time at school each week without loss of pay.

Superintendent Dyer, in an article in the *World's Work*, said of the effect on the boys, "They become awakened, interested, quickened into new ambition—probably forever different in their attitude toward their work. We hear about the conservation of our national resources. What we are attempting is the conservation of our greatest national asset, the young workman." The results have been so satisfactory that other schools will be opened as fast as called for. The Ohio legislature has taken a decided stand on the subject by passing a law making attendance at such schools compulsory for all boys and girls under sixteen. In judging the results the opinions of the manufacturers concerned are of importance. As reported in the *World's Work*, Frederick A. Gier, president of the Cincinnati Milling Machine Co., said, "We have about forty apprentices attending the continuation school and we have noticed a decided improvement in the efficiency of these boys. The value of the continuation school has been so evident that the men requested a class to be formed for them. This class is in operation and now the foremen of the shops have asked for a class devoted to their interests. I believe that the time has come when attendance at continuation schools should be made compulsory thru the youth's apprenticeship." Speaking of both the university plan and the continuation school, J. B. Doan, general manager of the American Tool Works Company, said, "We consider both plans a thoro success, and it is our belief that the continuation school will develop young men into better workmen, to occupy positions as foremen and superintendents, while the university course will develop them for higher branches of engineering."

This year two new continuation classes have been organized, one for printers' apprentices and one for department store workers. The latter class includes both boys and girls, tho the greater number are girls. Lessons in salesmanship will form a part of their course of instruction. The school for printers' apprentices opened with thirty-eight boys from eighteen firms. The unions are working in perfect harmony with the school authorities in regard to these continuation schools.

A night class has been arranged at the East Night High School for electricians' helpers. The course will teach electrical work from the simplest applications to such problems as armature repairing and making lightning arresters.

CONTINUATION SCHOOLS IN BOSTON.

Boston's continuation schools were well described in the July number of *New Boston*, 1915, by W. Stanwood Field, the director of continuation and evening schools in Boston. He brings out the fact in his introductory paragraphs that the majority of the younger workers have not the physical endurance which will allow them to work all day in the shop and then profit by instruction in the evening schools. That some other plan for schooling is necessary is apparent. To meet this need Boston established continuation schools as Cincinnati had done and practically in the same year. Boston has 20,000 working youths between fourteen and fifteen years of age, and in meeting the needs of this army of wage-earners, schools have been established in the shoe and leather industry, in dry-goods, and salesmanship. The courses of study are all very practical; in the shoe and leather class, for example, the following subjects are studied: the

production and distribution of leather, tanning processes, leather manufacture, recognition of kinds, grades, and comparative values of leather, manufacture and classification of shoes, salesmanship, and efficiency training. Visits to industrial plants are a feature of the work. As in Cincinnati these classes are held during the working day and students suffer no loss of pay.

In June, 1910, advisory committees of business men expressed to the school committee their approval of this type of school and requested that the classes be reopened in the Fall. The approval of employers and business men generally is shown convincingly in letters received this last season, two of which are well worth quoting. E. M. Fisher writes, "We feel that they (pupils from this store) have developed undoubtedly in the practical knowledge of the business. In all the general qualities which tend toward success in business, it is very evident from their work that they have improved and developed considerably. Without exception they show more initiative in their work, assume more responsibility, and are more alert and interested in learning details of their work and the positions ahead of them."

J. E. Priddy says, "It is indeed a pleasure to be able to tell you the training our young people have received has enabled a number of them to secure advancement and has made all of them more intelligent and efficient, and, more important still, has taught them the value of taking an intelligent interest in their work." Surely these results are worth while! Still better come statements from the pupils themselves. Follow up records from one hundred pupils, who completed their course in June, 1910, show that forty-seven of the hundred obtained promotions to positions of greater responsibility, ninety had been employed continuously, and only three were unemployed over two months and two of these cases were due to illness. Eighty-three reported their salaries increased, seventy-six receiving an increase of over 20%. Seventy-nine out of the hundred are still with the same employer.

One pupil says, "I learned to be punctual;" another says, "The school has most of all encouraged me and made me ambitious to strive for something better at a time when I needed encouragement." A student who had had a 60% increase of salary said, "The school gave me a broader knowledge of goods and methods, and an opportunity to work."

The point of view has been well expressed by Mr. Field in the following statements: "Most of the boys in question must first be efficient office boys and clerks and salesmen before they will be given opportunity in connection with the higher positions; and it is from this point of view that we are attacking the problem. The whole tone of our continuation schools dignifies labor and seeks to turn out the young man and young woman who by their ambition and worthiness bring credit to the positions in which they are placed. This is the type of person most useful to society and most sought by the business world. It is the only type that the employer finds it safe to promote."

EVENING SCHOOLS. THE Y. M. C. A.

Evening schools in the United States are of many kinds and are maintained in various ways. There are evening schools in connection with all regular trade schools, public high schools, and special institutions such as the Mechanics'

Institute in New York and Lewis Institute in Chicago. Then there are evening classes in Franklin Union in Boston and Cooper Union in New York; and most far-reaching of all, evening schools of the Y. M. C. A.

The history of the growth of evening school work in this splendid association reads like a romance. Nineteen years ago, in 1892, there were a few evening classes in language and commercial subjects, but vocational classes were an unknown quantity. The educational work, twenty years ago, was in a feeble, inefficient state and was regarded as a side issue. In 1910 there were over one-hundred and thirty courses for men and boys—courses industrial, trade, and vocational, as well as commercial and language. Fifty-nine of these courses were distinctly vocational, and under Y. M. C. A. management; there are now fourteen apprentice and trade schools. In addition to these the Association conducts educational work outside of their own buildings—practical talks and demonstrations in shops and factories. Railroad men and the Army and Navy also receive instruction in convenient places.

The numbers of students give some idea of the extent to which this work is appreciated. Six thousand employed boys are enrolled in Y. M. C. A. classes, who with the employed men swell the enrolment to nearly 60,000. The practical talks and demonstrations reach 300,000 more, and the educational clubs include 13,000. Still the Association is broadening every year and is asking for an educational endowment and for more trained workers for the educational classes. The educational work has changed from a halting attempt to a thriving enterprise—a side issue no longer.

It is when the nature of the vocational classes is investigated that one sees how wonderfully the work has been fitted to the needs of the individual communities, how old traditions have been upset, and how the Association stands ready to help any man in any industry.

The Association opened and conducted the first automobile school in the United States; now it has forty such schools. There is a unique school in the subject of piano design in a piano manufacturing district. The Y. M. C. A. offered the first course for building caretakers or janitors, in Brooklyn. It conducts an apple-packing school in the great fruit section of the Northwest. In Hartford, Connecticut, there is a course in fruit-growing, with field work; also a class in poultry raising. In Grand Rapids, Michigan, we find classes in furniture design and show-card making. A class in machine design and automobile construction is in operation in Milwaukee. A class in practical forestry fits community needs in Spokane, Washington. A school for firemen is found in St. Louis.

Certain business firms have applied to the Y. M. C. A. to conduct schools for their employees; for instance, there is a sheet-metal class of Lupton Company employees at Philadelphia, and a class for apprentices of the Westinghouse Air-brake Company at Wilmerding, Pa.

Telegraphy is successfully taught by the Association, the Albany, N. Y., association having the use of the main trunk lines for their practical applications. Cleveland and Buffalo branches conduct schools of navigation and the Detroit branch has a watchmaking school. Youngstown, Ohio, announces a day course in industrial subjects for night-turn men. The Association is also doing work

of this kind in the Panama Canal zone and other out-of-the-way centers of activity. Work is conducted in rural communities along agricultural lines.

In addition to these particular schools the Association has the more usual schools of mechanical drawing and architectural drafting, with 10,320 enrolled; machine-shop and building practice with 3,240 enrolled; and apprentice schools of various kinds with 570 enrolled. It has twenty schools for plumbers' apprentices and fifty schools for electrical and chemical laboratory work.

There are many Y. M. C. A. classes in English for foreigners. At first glance the latter may not appear vocational, but they prove to be when one considers that the learning of English increases the foreigners' working efficiency. One New England manufacturer declares it increases the efficiency to the value of twenty-five cents a day. There are 3,500,000 men and boys of foreign birth in our American industries, with a yearly addition of 450,000. The Association is helping this class of men at the rate of 10,000 annually.

Broad as this work is and most laudable in its efforts, yet there remain millions of workers who depend upon other means for their improvement.

YOUNG WOMEN'S CHRISTIAN ASSOCIATION WORK FOR THE EMPLOYED.

The Young Women's Christian Association is doing for women a work similar to that of the Y. M. C. A. for men, in purpose tho not in extent. Domestic science and art are included in the course of study in nearly every educational department. In some localities additional courses of a more directly vocational nature are found. One hundred and thirty-four associations report work in domestic art with a total enrolment of 14,079. In domestic science classes there is a total enrolment of 7,496 from reports of ninety-seven associations. A number of city associations give courses in millinery, dressmaking, and pattern-drafting. Pittsburg and Los Angeles have courses for waitresses, housekeepers, and in cooking for the sick and convalescent. Omaha has a maid's course. A large number of associations have business courses.

In addition to the regular educational work, the Association conducts classes of various kinds in factories and shops. This is known as extension work. The subjects given in these classes vary with the needs of the communities. In some cities mental stimulation and cultural effects seem to be the aim, in others the work is related directly to the industries in which the members are employed. Of this extension work there are 242 weekly classes reported, with an enrolment of 3,656. Doubtless this work will, as time goes on, broaden out and become increasingly vocational, and industrially helpful to employed women.

OTHER EVENING SCHOOLS.

MECHANICS INSTITUTE.

The Mechanics Institute of New York conducts a large and flourishing evening school under the direction of Louis Rouillon. The calendar for 1911-12 shows the following subjects on the list: six courses in architectural drafting, twelve courses in mechanical drafting, six courses in freehand drawing, three

courses in modeling, six courses in mathematics, five courses in science including industrial electricity, wireless telegraphy and telephony. These courses, while more or less advanced, are extremely practical and are made directly beneficial to workers in the various industries. Mechanical drafting, for instance, includes machine design, drafting for cornice-makers and sheet metal workers, patent office drafting, yacht and ship drafting, typography drafting, and others.

Diplomas are awarded to students completing the several courses, and scholarships in the New York School of Trades are provided. The graduates are engaged in such pursuits as decorating, designing, model-making, photography, illustrating, machine and automobile construction.

The school always has a large waiting list, the classes being made up from the applications in the order in which they are received. The enrolment at the beginning of 1910 was 2,316, not including the waiting list. The enrolment has nearly doubled in the past five years.

One element in the success of Mechanics Institute is doubtless the fine free circulating library, containing about 100,000 volumes, particularly complete in books of interest to mechanics. The Slade Architectural section for reference only, contains many rare books on architecture and allied subjects.

COOPER UNION.

Cooper Union is doing a large and growing work for the men and women of New York. The trustees are jubilant over the new building in process of construction, made possible by the combination of several new donations and bequests. It will probably be possible when the new quarters are completed to accommodate the greater part of the applicants, which this year totaled 8,301, including new students and promoted students. Only 3,580 could be admitted to the classes, for lack of space.

The work done at the Union is broadly classed under the headings: a night school of science for men and women, a night school of art for both men and women, a day school of technical science, a school of stenography and typewriting for women, a school of telegraphy for women, debate and elocution, civics and economics.

Hundreds of men and women are obliged by the necessity of immediate wage-earning to neglect talents and abilities which require expensive schooling. Cooper Union evening classes come to the rescue of these submerged talents, and year by year, help their students into the longed-for vocations in the fine arts and sciences.

It is to be regretted that this school, as well as others, must have a "waiting list," and that lack of finances should put a check on the ambition of people willing to work all day and study at night.

NEW YORK.

New York has a great variety of evening schools with vocational work in addition to those we have outlined at greater length. For women and girls the following schools are available: six public evening high schools, two evening trade schools, evening classes at the Manhattan Trade School, Pascal Institute,

the Needlecraft School, the Y. M. C. A., the School of Domestic Art and Science, and the different art schools, including unusually good opportunities at Pratt Institute.

For men and boys there are seven evening high schools, three evening trade schools, evening classes at the New York Trade School, a Nautical School, St. George's evening trade school, and the Art Schools.

BOSTON.

The Boston evening industrial schools are well equipped for their purpose. There are large forge- and machine-shops, rooms for drawing, a woodworking shop, and rooms equipped with power machines for girls' and women's work. Part of each shop is arranged with seats for a demonstration or recitation. The Central Evening Industrial School is in session three evenings each week, also its two branches, the Brimmer and Roxbury schools, and the Evening Trade School.

The instruction is largely individual, so that a workman may get instruction on the one phase of his work with which he happens to be unfamiliar, or he may take such a course as will help him with his trade in a general way. The following courses have been in demand: architectural drawing; automobile and carriage body design, French rule; design (for glassworkers, decorators, etc.); a course for firemen, engineers, and janitors; forging; machine-shop practice; machine drawing; freehand drawing; pattern-making and sheet-metal drafting. Courses are added as fast as they are called for.

For the women and girls at the Evening Trade School courses are offered in cloth machine operating, straw machine operating, cooking and household management, and economics.

Tuition is free to residents of Boston. Certificates are given at the close of each course stating the amount and quality of work done by the student.

CHICAGO.

The Lewis Institute of Chicago evening classes in vocational subjects are planned and conducted in consideration of the needs of a widely-varying industrial community. Specific trade courses do not seem to be so much what is required as general shop and drawing courses. The school has courses in mechanic arts, engineering, and domestic economy. There are no entrance requirements, each student being placed and instructed in relation to his individual needs.

A tuition fee is charged—five dollars for each course of ten weeks, two evenings a week.

The enrolment, according to the latest available report, totaled 1,340 for all evening classes, including the non-vocational.

TRENTON SCHOOL IMPROVEMENTS.

The Trenton School of Industrial Arts opened in a new building this fall, with new equipments and enlarged facilities. A new department, Household Art, has been added, which includes dressmaking, millinery, and home decoration. These courses will be directed by Miss Emma Backus. Miss Mary E. Markley will assist in the home decoration course.

The school conducts night classes for those employed during the day, thus offering an opportunity for advanced work in the industries along scientific and practical lines. The department of chemistry has new laboratories and is much enlarged. The work in bookbinding is very practical and efficient. Many trade orders are filled at the school, and a number of students have found a ready sale for their hand bindings.

COOPERATIVE PLAN OF ENGINEERING INSTRUCTION AT THE UNIVERSITY OF PITTSBURG.

The University of Pittsburg is located in one of the largest engineering centers of the world, consequently it is very favorably situated to apply the cooperative system of engineering education. The work is conducted under actual commercial conditions. Thoroughly practical knowledge can be had only by actual work in the engineering industries and should be required as early as possible. Working side by side with other employees, students get an insight into labor conditions. Detailed observation of engineering work and the conduct of business, from the productive point of view, gained in the student's formative years, is an invaluable addition to knowledge gained from text-books and instructors. Each student reports to the proper instructor at the University every alternate week and at the end of each term he presents a written report covering all the work.

The system adopted divides the school year into four terms of approximately twelve weeks each and keeps the student in school during his freshman and senior years. During the sophomore and junior years he spends one-half of his time in school and one-half in shop, interchanging every three months, thus furnishing continuous service to the manufacturer. This arrangement allows the faculty time to become acquainted with the student before he is turned over to the manufacturer so that they can eliminate those students who appear unfitted to pursue engineering work. At the same time by retaining in its curriculum the same amount of shopwork as required previous to the adoption of the cooperative system, the student receives the fundamental training in shopwork which makes him of some value to the manufacturer at the beginning of his practical work. This work, however, is modified and will be further changed to meet the needs of the cooperative work. The shopwork is so arranged that the student makes a study of material, types of tools and machinery, and the best methods to be employed in order to obtain the maximum output at a minimum cost. Frequent visits of inspection show the student the relation of his university shop course to actual commercial operations. The question of shop management is covered by lectures, recitations and reports on the cooperative work.

The student is retained in school during his senior year in order that he may base his last year of theoretical work not only upon his school training but also upon his year of practical work.

The first students under this system entered the practical work the first of April of the present year. A larger number of students started the latter week in June. At the present time the University has about seventy men in cooperative work. Among the different types of work in which the students are employed

may be mentioned glass, reinforced concrete, street paving, electrical work such as armature winding, repairs, etc., erecting work for steam engines, foundry, drafting, structural steel, etc. The order in which the work is taken may be illustrated as follows: freshmen, those who have completed the freshman year, are at work in the foundries; sophomores in machine-shop, and juniors on the erecting floor of locomotive works. Of the men sent out so far only one has failed to make good and of the others the manager of works of one of the largest concerns of the Pittsburgh district stated in a public address that they were among the best he had ever taken into the works. The average pay received by these seventy men is something over fifty dollars per month.

The work seems to increase very greatly the interest of the student, not only in his own work but also in that of other men in other professions. The discussions at the bi-weekly conferences show that the system will accomplish even more than was anticipated in giving the student a better grasp of the fundamental principles underlying productive engineering.

FREDERICK L. BISHOP.

UNIQUE PRINTING COURSE.

The circular announcing the details of the course of instruction in printing, conducted by the Inland Printer Technical School, which has been recently issued, contains some fine examples of work done by the pupils of the school. The examples of work include letter-heads, title pages, display advertisements, and other problems involving the study of design. There are several unusual features in connection with this course. One is that it is endowed by the International Typographical Union so that the instruction is sold for less than the cost of tuition. Another is that the instruction is given by correspondence and it has achieved wonderful success. Printers all over the English-speaking world are enrolled as students, altho the course is little more than three years old. Its clientele is restricted to those who work at typesetting, but any compositor may become a student. The work is in charge of a Commission on Supplemental Trade Education, created by the International Typographical Union, and it is looked upon as one of the Union's Contributions to greater industrial efficiency. Information may be obtained by addressing the Commission at 120 Sherman Street, Chicago.

A NEW KIND OF LECTURE BUREAU.

Announcement has been made of the inauguration of a new plan to provide speakers for all sorts of teachers' associations, conventions, brotherhoods, women's clubs, parents' associations and supplementary work in the schools. It is the outgrowth of a work started last year by the magazine *Education*, which awakened so much interest and called forth much favorable comment. The special features of this Educational Lecture Bureau are: (1) Educational lecturers only are listed and no attempt is made to compete with ordinary entertainment bureaus; (2) The credentials of all lecturers applying are to be examined with a view to supplying only those who meet a rigid test of acceptability; (3) No fee is to be charged for services in furnishing lecturers, as it is not a part of the plan to make the bureau a revenue-producing enterprise. The office of the Bureau is at 120 Boylston Street, Boston, Massachusetts.

PRACTICAL RESULTS IN PORTLAND.

Portland, Oregon, has secured most effective results in her trade school this year. Practical demonstration of the benefit of instruction in trade schools is just what is needed to convince the public that vocational education is worth while and such a demonstration was given in the Portland exhibit held May 26th and 27th. The students in the plumbing department, for instance, have put all of the plumbing in the Detention Home gymnasium; have fitted the laboratories of the Trade School with lead sinks, and have done the plumbing work for the domestic science and millinery departments. One of the second year boys put in the gas fittings in a house on Portland Heights, his work winning the approval of the City Gas Inspector. The work of the plumbing department has been indorsed by the journeymen plumbers. Boys on completing this course, followed by a year of practical working experience, are capable of earning the five or six dollars a day commanded by members of their trade.

The electrical and machine departments are the most popular with the boys, having the largest enrolments of those in the school. The electrical classes have accomplished a truly remarkable piece of work in their wireless telegraph outfit which is valued at \$1,400. They have also to their credit an X-ray machine, a mercury turbine interruptor, and several ammeters and volt meters.

The boys in the machine-shop have made their own tools and in addition an electrically driven speed lathe and drill press. The work in wood has been declared by those who have inspected it as equal in correctness of finish to that shown in the stores. The furniture on exhibition was all done in quarter-sawed oak and included a full set of office furniture. It promises better things for the future of house furnishing when young men are taught to combine beauty and fitness of design with perfect execution in material as these young men are taught in the Trade School.

The work of the girls in the Trade School was of an extremely practical nature. In addition to the usual cooking display, two sample fifteen-cent luncheons were on exhibit. Such luncheons are served daily to the faculty. Hats, satin flowers and ornaments were shown from the millinery department. In the sewing department, the work has reached that advanced stage where a girl can make her own tailored suit or silk gown. Many such were on display as well as part of a tresseau made by one young lady for her own use.

TO HELP TO RISE IN THE BUSINESS WORLD.

The Brooklyn, New York, Manual Training High School has added a post graduate course in commercial work for girls. Charles D. Larkins, the principal of the school, has felt for some time that there was quite a large percentage of girls attending high school who at graduation did not care to teach and were unprepared for any work except teaching or further study. Many of these girls expect to enter business life, but after taking the ordinary business course, they still lack that preparation which will enable them to fill the higher business positions such as secretary or business manager. Mr. Larkins aims to have the girls who finish the new course become more than machine-like stenographers. They are to be trained office assistants with initiative and organizing ability

There is a demand for women for positions paying \$1,000 a year and over which this course aims to partially fill. The work of the course has been divided between study and practice. The subjects studied are practical office English, stenography, typewriting, and business arithmetic. The practice work will be in connection with the business work of the schools, as secretaries to heads of departments, and committees with a large correspondence. The commercial subjects will be taught by Mrs. Davies of the Girls High School.

WHAT VOCATIONAL TRAINING MEANS TO THE FILIPINOS.

Industrial work in the Philippine Islands is being more strongly emphasized by the department of education each year. The work as at present organized is in four general divisions, "minor industries, garden and field agriculture, trade and manual training work, and household arts." More than thirty provincial schools are fully equipped with woodworking machinery, and many have both woodworking and ironworking machinery. Teachers of carpentry, forging, and machine-shop practice are in great demand. There is a college of agriculture at Los Banos, and a department of engineering has been added to the Philippine University.

In the work for girls lace making and embroidery are emphasized for a vocation in the schools. The beauty of Filipino lace products is well known and the demand exceeds the supply. The lace and embroidery so far produced in the Manila schools have been bought up by chance customers visiting the schools on exhibition days. So great is the local demand that it is estimated that the schools will not need to seek an outside market for at least two years at the present rate of production. The world demand for fine embroidery has formerly been met largely by the European convents. Now that so many of these have been broken up much of this trade will go to the Philippines. Several large cities of the United States send their buyers of laces and embroideries to Manila. To supply this coming demand, the schools are increasing their facilities and training their girls in putting out a better class of work. Instructors who are experts in fine embroidery have been secured from the convents.

A SEATTLE EXPERIMENT.

Seattle is striving to meet the demand for industrial education by a modified course of study, largely industrial in character, for a certain group of students in one section of the city. The aim of the course will be "industrial culture"—education by the industries, rather than education for the industries—and also the carrying of as many as possible of the boys and girls who elect this course, to about the sixteenth year, when education for a definite vocation may be begun, or if they go out to earn their living they will be better prepared to enter an apprenticeship in trade or business.

In working out the plan, the group will be separated from the regular grade divisions, and will consist of pupils at least thirteen years old who have finished the sixth grade. A class teacher who will give her entire time to management and book work will be necessary and about half the time of two special teachers, one for the boys and one for the girls. The special teachers will be among those already

on the force of special teachers for the public schools, devoting the remainder of their time to special work in the grades.

A two years' course is planned, at the completion of which the pupils will be eligible for entrance to the high school. The school day will consist of seven or eight periods of forty minutes each. The girls will be given household arts and the boys shopwork and mechanical drawing daily. In addition to these subjects, both boys and girls will have English, geography and arithmetic, and drawing. One period a week music will take the place of drawing, also one period of physiology and hygiene will be substituted during the week. The academic work will differ from that now followed in the regular grades only in point of view and its application. In geography and history, for example, this and other countries will be considered primarily as to industrial conditions, resources, occupations, products, means of transportation and routes of travel. The history will deal with the industrial rather than with the political or military development of any given country.

The shopwork for the boys will include class discussions of various vocations and the requirements for each, also combinations of capital and labor—and will include visits to buildings under construction and to commercial establishments. The work in wood and metal will be so presented as to call the attention of the boys to materials and their appropriate uses, methods of construction, differences between machine and handwork, and factory and individual production. The work for the girls will be directed in such a way that the factory and commercial side of the subjects will become familiar to them as well as their application in the home.

No special equipment will be necessary for this experiment as the shopwork and cooking can be carried on in the regular rooms for manual training and domestic science.

Ben W. Johnson, director of industrial education in Seattle, is the originator of this plan.

COURSES IN THE NEW YORK TRADE SCHOOLS.

Superintendent Maxwell of New York City has issued to the elementary school principals circulars outlining the course at the Vocational School for Boys and the Manhattan Trade School for Girls. These circulars are to be given to all members of eighth grade graduating classes, and to any who are preparing to leave school before finishing the eighth grade.

The courses offered at the Vocational School for Boys are woodworking, metalwork, electric wiring and installation, printing, bookbinding, drawing, and certain non-vocational subjects, such as trade mathematics, industrial history, industrial chemistry, and elements of commercial law.

The Girls Trade School offers electric power operating, dressmaking, millinery, and novelty work—and in connection with these, art, physical education and business arithmetic and English, industries and textiles, civics, ethics of trade, and cost of living.

COOPERATIVE COURSES IN PROVIDENCE.

Providence, Rhode Island, began this fall a new cooperative course in jewelry. Arrangements have been made with fifteen firms for taking the boys, who must be fifteen years of age and must have completed the first year of high school work. The boys will work alternate weeks in the shop and in the school. Twenty weeks in all must be spent in the shop. The boys are placed in the shop for a trial period and if they prove satisfactory an agreement is entered into between the employer and the guardians by which the boys become half-time apprentices for three years, the employer agreeing to provide the best opportunities available for learning the trade.

The terms of the agreements safeguard the pupils thoroly; as is shown, by the following clauses: "The manufacturer agrees to maintain in his plant at all times, subject to the examination and approval of the school officials, proper sanitary conditions and adequate provision for the safety of the pupils in performing the work to which they are assigned;" or "No apprenticeship contract shall be approved by the committee on high schools, which permits more than ten hours work in any one day, nor more than fifty-five hours in any one week; nor where the compensation is less than ten cents per hour for the first year of shopwork, twelve cents for the second year, and fourteen for the third."

The course of study for the second high-school year (the first of the part-time work) includes, English, history of art, physics, chemistry, drawing, design, current events, and shop arithmetic. The third year high school course continues English, shop arithmetic, current events, drawing, and chemistry, and adds industrial history, metallurgy, modeling, and commercial geography. The fourth year work consists of English, design, modeling, metallurgy and precious stones, applied electricity, commercial law, current events, American history and civics, advertising and transportation.

This is not the first cooperative course in Providence, however. Such a course in machine-shop practice was established in the fall of 1910, in connection with the technical high school.

THE SOUTHERN INDUSTRIAL SCHOOL.

The \$5,000,000 Southern industrial school is to be located at Ragland, Alabama. The Southern Bureau of Education is establishing the school with the aid of John D. Rockefeller, Mrs. E. H. Harriman, Mrs. Russell Sage, and others. The project has been under consideration for a long time and is planned for white children who are unable to attend the existing institutions of learning. The students will be given every opportunity to earn their way and to prepare for any vocation they may select. The school will have departments of agriculture, horticulture, domestic economy, and other industries. It will be built to accommodate 5,000 students. The buildings will be put up by the students who enrol for the first year, so practical experience will be afforded at the very start.

Ragland gave a site of 5,000 acres, electric light and power free for ten years, to be paid for thereafter at one-third of the price. Senator W. T. Brown, who has large land holdings at Ragland, gives every third lot as fast as his land is subdivided and offered for sale. A school village is to be built around the school,

making the institution practically independent of local conditions. The location is about forty miles from Birmingham.

WISCONSIN'S BOARD OF INDUSTRIAL EDUCATION.

Wisconsin has appointed its new Board of Industrial Education, which has charge of Stout Institute as well as the other industrial schools of the state. The board is made up as follows: State Superintendent C. P. Cary, Louis E. Reber and F. E. Turneare, educators, H. E. Miles, Eli E. Winch, and August S. Lindemann, employers, Miss Donna Dines, Murt Malone, and William M. Miller, employees. H. E. Miles is president of the board. The board recently made a visit to Stout Institute where all the necessary proceedings took place which transferred the property to the custody of the new board. They expressed their approval of the condition of the institution, and retained L. D. Harvey as president.

PRE-VOCATIONAL CLASSES IN BOSTON.

The pre-vocational classes at the North Bennett Industrial School, Boston, will be enlarged, so as to accommodate more pupils. Forty boys will begin the work this year, working as the other classes have done, since the organization of the work in 1909, half the day in the school shops and half the day at academic subjects. These subjects have been so worked out as to be industrial in character. This has involved much research work and careful planning as very few if any text-books are suitable for the purpose.

The boys are encouraged by this pre-vocational work to remain in school much longer than they had intended, and are better prepared when they leave to choose a vocation.

A CLASS FOR OVER-AGED GIRLS.

Newton, Mass., schools have a high school class for "over-aged" girls—girls who have fallen behind in the grammar grades. Last September fifty girls who had not finished the grades but who were of high school age were allowed to enter a class arranged for them in the high school.

The individual girls who made up the class had been previously studied from every point of view to discover the cause of their lack of progress. The conclusion was formed that the apparent low grade of mentality was due to mediocre natural ability, poor health, poor attendance, and unfavorable home conditions.

It was hoped that the opportunity to enter the high school would stimulate their interest in school work, and so it has proven. The course consists of fourteen periods a week in household economics and design, and ten periods of so-called academic subjects. The English work has been so planned as to give the girls a taste for reading and the ability to speak and write plainly and forcibly. Talks by good authorities on vocation have been an important feature. The aim of the whole attempt has been to provide a means by which this class of girls could be fitted to take up some line of vocational study if they did not choose to remain at home where their present course would at least make them more efficient. Their grasp of book knowledge will never be very firm, but they have shown that they can be trained to be efficient workers, and many have shown marked industrial ability.

A GEORGIA ELEMENTARY INDUSTRIAL SCHOOL.

At Tallulah Falls, Georgia, is an industrial school of the elementary type, maintained and conducted by the Georgia Federation of Women's Clubs. A small share of the expenses is borne by two counties, Habersham and Rabun, from the public school fund. The industries taught are cooking, sewing, canning, basketry, gardening, and agriculture. Woodworking is soon to be added. A small monthly tuition fee is charged to both day and boarding pupils, in the case of the latter, ten dollars a month. A new home for teachers and boarding pupils will be opened during the year.

While this is a small school, with a limited curriculum as yet, it means a great deal to the mountain community in which it is located. The material and educational poverty of these mountain communities is already well-known. The establishment of this school which, while not in any sense charitable, yet has a tuition within the means of the community, has more than a local significance. The Federation of Women's Clubs has set a good example in carrying out this project. Mrs. M. A. Lipscomb is the director of the school.

MRS. ELLEN H. RICHARDS.

The cause of home economics has lost a loved and valued leader in the death of Mrs. Ellen H. Richards in March of this year. Mrs. Richards was the founder of the home economics movement in America, and for the past twenty-five years has been the general directing the forces in the field. She was president of the Lake Placid conferences on home economics and was the first president of the American Home Economics Association, and honorary president at the time of her death. She was consulted whenever courses in home economics were introduced in the prominent educational institutions; and by her lectures, writings, and personal help in many ways had been a stronghold of inspiration and power to teachers of the subject from Maine to California.

The immense amount of scientific work she did, the offices she held in societies, the books and articles she wrote, the courses she formulated, the lectures she delivered, can all be enumerated; but her influence and power can never be fully estimated, for they will still go on.

The October number of the *Journal of Home Economics* is a memorial number in memory of Mrs. Richards, and is filled with expressions of esteem from all parts of the country.

WENTWORTH INSTITUTE OPENED.

The enrolment at the opening of Wentworth Institute, Boston, ran over one thousand. As the school can accommodate only six hundred, a long waiting list was necessary.

The following buildings are now complete: the foundry, and the main shop building, five stories high, which contains the carpenter shop, pattern shop, machine shop, plumbing shop, and electrical wiring room. There are large laboratories for practical mechanics, electrical appliances and electrical machinery, building materials, and power-plant operation.

There are to be in addition to these a small wing for administration offices, and a large power-house about eighty feet square.

The school offers one-year day courses in the building trades and the manufacturing trades; two-year courses in machine construction and tool design, and in electrical construction and operation; night courses in the same subjects as the day courses; and cooperative part-time courses.

NEW ENGLAND INDUSTRIAL EXPOSITION.

New England's industrial and educational exposition, held during the month of October in Boston, was an event of immense interest and importance. It showed the industrial awakening of New England in a very graphic way and it also showed the thousands of visitors just what is meant by vocational education.

The industrial educational section occupied 4,000 square feet of floor space on the second floor of the Mechanics Building. The exhibit in this section was not planned to show the work of the schools as schools, but to show as completely as possible the various types of vocational work now operating to meet the needs of different industries and communities. To accomplish this aim selected parts of the work of all the well-known schools were shown, each line of work in actual operation whenever possible. A Chinese boy was seen operating a power drill; Italian boys modelled commercial statuary; pupils were seen weaving and carding cotton; and an aeroplane was in motion in the aviation school. The pupils at work were able to tell about their work in an intelligent way and to answer questions.

The following lines of work were included in the array: machine-shop practice, cotton picking, drawing and carding, electrical and engine work, practical mechanics of an industrial nature, auto engines, wood-turning and bench-work, commercial sculpture and modeling, power sewing, millinery, printing, bookbinding, practical aeroplane work, ship building, shoemaking, machinery and many others. Practically all the vocational schools in New England were represented.

Boston had a large wing of the educational section with a very interesting exhibit.

The work of preparing the industrial educational section was in the hands of a sub-committee composed of James P. Monroe, Alvin E. Dodd, Arthur L. Williston, Charles M. Park, with Arthur D. Anderson, secretary.

The influence of this exposition will without doubt be far-reaching in its relation to the growth of New England industries, but in addition to its effect on the general public it will serve as an inspiration and stimulus to renewed effort to the young men and women of the vocational schools who will have seen in the exposition their work in its relation to the whole industrial life of the New England states.

REVIEWS

Simple Problems in Industrial Arithmetic for Grammar Grades. by Brenelle Hunt. New England Publishing Company, Boston, 1911; 5x7 $\frac{5}{8}$ "; pp. 72.

One marked evidence of the importance of the position that industrial education is taking in the larger field of education is the rapid development of its literature, especially that part of it that deals practically with the problem in attempting to put in pedagogic form, for the service of the teacher and the pupil, the results of experiment and experience.

This is apparently the purpose of this interesting and suggestive little book. It contains a series of concrete arithmetical problems arranged in fifteen lessons under the titles: Glass Cutting, The School Desk, Making Picture-Frames, the Manufacture of Screws and Pins, Printers' Problems, The Circular Saw, A Simple Study in the Use of Lumber, The Manufacture of Wooden Boxes, Board Measure, Framing the Floors of Small Buildings, Walls and Roofs, Boarding and Shingling Roofs, The Manufacture of Wire Nails, A Study of Wages, and How the Price of a Pair of Shoes is Determined. Brief, explanatory notes dealing with the technique of the industry or subject are given, but there is no discussion of arithmetical principles. These notes must be supplemented by much expert information, a knowledge of which is implied. The drawings are manifestly not the work of an experienced draftsman and in some instances would be difficult for a child to understand. The author in his introduction anticipates the criticism of the practical worker who uses "short cut" methods but holds that education should deal with fundamental principles and processes. The problems are simple, but are capable of extension to more difficult work. They are largely dependent upon first hand knowledge and experience of the child. Those based upon local conditions can be recast to meet conditions elsewhere.

The value of the book lies as much in what it suggests as in what it gives, for the teacher will immediately think of innumerable similar problems upon the themes presented, as well as the application of the same ideals to other subjects. The same treatment of food products introducing weights and measures, of textiles and clothing and of personal and home accounts and simple business methods would add to the significance of the work as a study for girls, as well as broaden its scope for boys. This book should be of interest to every grammar grade teacher.

—Myrtle G. Campbell and W. E. Roberts.

Vocational Algebra. By Wentworth and Smith. Published by Ginn & Company, Boston, New York, Chicago, London, 1911; 5x7 in., pp. 88.

This little volume, written by Geo. A. Wentworth and David Eugene Smith, is intended to meet the demand for the essentials of algebra on the part of the vocational schools.

As was to be expected of a book prepared by these two well known authors of mathematical texts for academic schools, this book is a scholarly but academic treatment of this subject, quite like the other algebras but brief as to subject-matter.

If algebra is to be presented to vocational students as it has been presented to academic students, the only difference being in the elimination of much of the subject matter, this little book will meet with hearty appreciation.

The writer of this review has an opinion, however, that any vocational text, to be of the highest value, must have its mathematical principles submerged in applications connected directly with the trade being taught. One of the weaknesses of the academic treatment of such subjects as English, science, mathematics, etc., lies in the fact that the applications of principles are incidental and so general in character that they touch the world in which the student is moving in a most superficial manner. When the student leaves school and enters work he flounders not because of a lack of study of principles but because he has had so little practice in applying them to his particular subject or trade that he cannot make the transition from principle to practice.

The remedy lies in building the texts so that the student will become thoroly saturated with principles directly applied to the problems of his particular trade. No man of purely academic training can build such a text without doing that which few have done, make himself thoroly conversant with the trade for which he is writing the book.

The authors and publishers are to be commended for their desire to meet an evident need.

—IRA S. GRIFFITH.

Industrial Education. By Dexter S. Kimball, Professor of Machine Design and Construction at Cornell University. It is No. 1 of "Studies in Education" issued by the University; pp. 42., price 50c.

The author of this pamphlet is well qualified to write on the topic. He served in his youth one of the old fashioned apprenticeships; afterward he went thru college; later entered the industrial world and rose to the position of superintendent. He is now a college professor. He discusses most clearly to what extent it is possible to give practical trade instruction in organized schools and considers the question of whether these new schools should be formed out of our existing schools or should be differentiated from them. He takes up the advantages, disadvantages and limitations in factory and industrial school trainings. He is particularly clear in a discussion of the relationship of industrial training to general education. He defines all forms of purposeful education as consisting of four distinct stages, as follows: (1) Stage of general or liberal training; (2) stage of training in specific fundamentals; (3) stage of training in specific technical studies; and (4) stage of practical application and adaptation. The pamphlet contains several illuminating and very instructive diagrams. One is decidedly unique, in that it develops the type of education that may be in use in many of our states in the near future. It shows the place of the elementary school, the intermediate industrial school, the trades school, the technical high school, and the technical college in a state system of education. One of his statements might well serve as a golden text for those who would bring together the discordant elements now existing in industrial and liberal education. It is this: "All educational experience goes to show that vocational training without a liberal background is deadening just as liberal education without some vocational direction is apt to be ineffective and fruitless."—A. D. DEAN.

Elements of Machine Work. By Robert H. Smith, Massachusetts Institute of Technology. Published by Industrial Education Book Co., Boston, 1910; 5x8 in., pp. 192; illustrations 204; price \$2.00.

This book sets forth in a clearly and a well illustrated manner the fundamental principles in machine construction.

The book, from beginning to end, is very valuable to the student of machine work and to the apprentice in the machine-shop. The opening chapter gives briefly the history and origin of machine tools, equipment for teaching and manufacturing, the materials used in a machine-shop, where and how obtained, and how to read a mechanical drawing and the various methods of representing an object. It also gives the standards of linear measurement, the methods of laying out work and many illustrations showing the use of measuring and laying out tools.

In chapters III, IV, and V the hand and power methods of chipping, filing, and scraping are described and illustrated. Many forms of cold chisels are shown and an explanation given as to how they are used in roughing and finishing cuts. In connection with the chisel the subject of grinding tools and the care of the emery or grinding wheel is given quite a little attention.

The chapter on files clearly indicates by word and drawing how they are made, how classified, the uses and names applied to them, and many other things of interest to those having to do with this tool.

Chapter VI in a brief but clear manner gives many interesting facts about, and methods, of annealing, hardening, tempering, case hardening, tests for hardness of steel, etc.

Under the subject of pipe fitting, pipes, fittings and pipe tools are well described in comparatively few words and with many illustrations, charts and tables.

The remaining chapters are devoted to soldering, brazing, babbiting, power transmission, the installing of machinery, aligning shafting and many similar operations necessary for the student and apprentice to know. Thruout the book are problems, tables and other data used in the machine-shop. Exercises, or problems, are given in chipping, filing, scraping a surface, pipe fitting, and the several other subjects with a "Schedule of Operation" in which the author makes clear how such work is to be done and what tools are to be used.

The line of work and method of doing things as set forth in *Elements of Machine Work* are very suggestive, and even if the instructor does not care to follow the exact order of the book a course can be selected from it that is distinctively industrial, inexpensive to introduce, and one that will lead to a course in advanced machine work.

—PAUL W. COVERT.

Annual Report of the United States Indian School, Carlisle, Pennsylvania, 1910; 6½x9¾ in., pp. 31; full page half-tones 8.

Catalog, United States Indian School, Carlisle, Pennsylvania, 1910. 6½x9⅞ in., pp. 96; numerous half-tone illustrations.

The Red Man, an illustrated magazine; Vol. 3, No. 5, January, 1911. Published monthly by the Carlisle Indian Press, United States Indian School, Carlisle, Pennsylvania; 7½x10½ in., pp. 40; price \$1.00 per year.

Carlisle and the Red Men of Other Days. By George P. Donehoo. Published by the Carlisle Indian Press; 7x10½ in., pp. 24, illustrated.

Outline of Course, Department of Printing, United States Indian School, Carlisle, Pennsylvania, 6¼x9½ in., pp. 4.

Suggestions, Department of Dairying, Carlisle Indian School, Carlisle, Pennsylvania, 6¼x9½ in., pp. 3.

The foregoing pamphlets constitute an admirable exhibit of printing done by Indians who are students at the Carlisle Indian School. The composition, presswork and binding leave very little to be desired. The mechanical work is executed by apprentice students under the direction of an instructor. The borders, initial letters, sketches, headings, cover pages, etc., are the work of the Art Department of the school. One of the title pages states that "In the printing of this brochure forty Indian apprentices participated. They represented these tribes: Caddo, Cayuga, Cherokee, Chippewa, Hoopa, Mohawk, Oneida, Onondaga, Ottawa, Pawnee, Piegan, Quapaw, San Poil, Seneca, Sioux, Shoshoni, Wichita."

RECEIVED.

The Engineering Teacher and His Preparation. By A. N. Talbot, Professor of Municipal and Sanitary Engineering, University of Illinois. Reprinted from the Bulletin of the Society for the Promotion of Engineering Education, Vol. 2, No. 1, September, 1911; pp. 28.

Preparation versus Luck. By Robert Lynn Cox. An address delivered at a banquet of the Insurance Institute of Hartford, Connecticut.

Commercial Education as a Branch of Vocational Training. By Cheesman A. Herrick, president of Girard College, Philadelphia. Reprint from the Proceedings of the National Education Association, 1910.

Report of Hebrew Technical Institute, New York City, 1911. This contains a table which shows that 70 per cent. of the graduates of the school are following mechanical pursuits, and gives the average weekly earnings of the graduates by classes since 1886.

Announcement of Technical Education, 1911. Teachers College, Columbia University. Outlines of courses offered in School of Industrial Arts and the School of Household Arts.

Proceedings of North Central Association of Colleges and Secondary Schools, 1911. Contains a paper on "Vocational Guidance A Function of the Public School," by Jesse B. Davis, of Grand Rapids, Michigan, and papers on agriculture and home economics in high schools. Price, 25 cents. J. E. Armstrong, Englewood High School, Chicago, treasurer.

Report of Trustees of Independent Industrial Schools, Worcester, Mass., 1911. Contains floor plans and photographic illustrations of the Worcester Trade School and a statement of the aim and organization of the school.



DAVID RANKEN, JR.

BORN, OCTOBER 11, 1835

DIED, AUGUST 18, 1910

VOCATIONAL EDUCATION

JANUARY, 1912

A NEW TASK FOR THE PUBLIC SCHOOLS.

LEWIS GUSTAFSON.

IT used to be that a boy wishing to learn a trade was bound out or apprenticed to a master for a term of years. He became a member of the master's household, lived under his master's eye, very much in the manner of an adopted son, and learned his trade under the master's direct supervision and tutelage. This way of learning was possible in the day of small industries when each manufacturer or tradesman performed the full round of his trade's activities in the one shop and there was time for hand-work because machine-work did not exist. Now that method is no longer possible. The invention of machinery has brought about a close subdivision of labor. We have become specialists. An apprentice would nowadays rarely have the opportunity to see the whole process in one shop. The invention of machinery has increased the speed of production. Things move at such a pace that there is no longer time for the master or operative to spend teaching an apprentice. Our shops are too large; the employer has too many in his employ for him to bring the employe into his family. Moreover, the social gap between employer and employe would nowadays make him unwilling to do so if he could. The result of this economic change, which is itself only the result of a social development, has been that we either have come to depend for our skilled labor upon immigration from those European countries where the development has not been so rapid or have been forced to put up with such half-skill as we have been able to get by haphazard methods. Our boys, in most cases, have had to be content with learning intensively thru much drudging repetition only a small part of a trade, such as tending one machine or making one part of a garment, or they have had to be satisfied with a smat-

tering of the whole trade by what is known as stealing, *i. e.*, going about from place to place, and on the pretence of being skilled workmen, securing work on one operation in this shop and on another in that shop, leaving this shop voluntarily and being kicked out of the other for incompetency, until the whole round has been accomplished. In the meantime the conditions of entrance have grown increasingly difficult, with the result that the industrial occupations have been crying out for workers competent to take the positions requiring the greater skill and that the boys who, under the old regime, might fill those positions, have become either closely confined specialists, or unskilled or semi-skilled workmen, or have gone into other pursuits altogether. Employers and statesmen with increasing insistence say that we cannot secure skilled workers; graduates from our schools increasingly insist that the education we have given them fits them in no way to earn their bread and butter. State commissions in Massachusetts and elsewhere find thousands of boys and girls between the ages of fourteen and sixteen out of school and in "blind alley" occupations where their earning capacity—now only sufficient for their own barest support—will offer them no hope for the adequate support of families when families shall come to them. It is to remedy these conditions, for the sake of the boys and the girls and the industries, and for the sake of the community dependent upon them, that the introduction of vocational training is being urged upon the public schools.

THE RESPONSIBILITY OF THE SCHOOL.

Spencer defined education as preparation for complete living. "Training for citizenship" has long been the phrase used in defining the educational aim. The culminating educational doctrine at the close of the nineteenth century was that the school is a social institution and the aim of education is social efficiency. The new demand is only the logical development of this doctrine. With most of us a large part of our adult life is taken up in earning a living; for at least eight hours a day our work *is* our living; for any right citizenship is needed the contribution of our own support and, in most cases, the support of others; there can be no social efficiency for the dependent.

The one great new task confronting the public schools for the next ten or twenty years is the inauguration of a system of vocational training which, without omitting or neglecting any of the good results now already being secured in the attainment of culture and the development of citizenship thru a sense of social obligation, shall, in the language of

the Sub-Committee of the National Education Association on the Place of Industries in the Elementary School, give "the best possible start toward the life-work in which the person will be the most content and most efficient." The great fact to be borne in mind, if this is true, is that in this wide-spread and increasingly insistent plea for vocational training there is no question whatever of eliminating or reducing or sacrificing the essential elements of our present system. All that is being demanded is the inclusion of certain vital elements in the life training of the pupil which have been heretofore left to the influences outside the school to supply and which these influences are no longer capable of supplying adequately. All that is being demanded is that the schools supply to the ninety or ninety-five per cent of our non-professional workers in the trades and industries such opportunities for preparation for their life work as the schools abundantly furnish to the ten or five per cent who go into the professional occupations. To do this means increased facilities, not fewer, more culture, not less; it involves the addition of courses in the curriculum, not the taking of courses away; it involves the erection of more schools, not the abandonment of any. The cry immediately goes up that the curriculum is already overcrowded, that there are too many things now for the pupils to do in a day. Possibly the inclusion of these new matters will teach us what we should long ago have learned, that the curriculum of a modern school is pretty much like the bill-of-fare at a large hotel—not to be taken in its entirety as a prescription by any guest, but as a list of things to be selected from according to certain well-recognized dietary principles in order that each guest may be provided an orderly and beneficial meal according to his needs. There should be no fear, then, that the schools will suffer any violent or radical change. Those who go about proclaiming that an effort is being made to turn our public school system in its entirety into a system of trade schools are but fighting a man of straw.

But you may well inquire, is this new task a task which the public schools are under any obligation to undertake? The answer to this inquiry must be Yes. If it is true that the public schools represent the organized effort on the part of the community for the training of the young, then it is true that just as soon as conditions reach the point where any important part of the training of the young for social efficiency is being neglected outside or can be managed better in the schools than outside, just so soon is it the duty and the privilege of the public schools to undertake that part. Just so soon, no sooner—and no later!

A DIFFICULT TASK.

The task is no easy one. It involves not only a discovery for each pupil of the life-work in which that pupil will be most content and most efficient, a discovery which many people never succeed in making for themselves and which in many cases is well-nigh impossible, but it involves also an analysis of the various employments possible to the pupils and an adaptation of their content to the conditions and methods of instruction. By this I do not mean necessarily the methods and conditions of the public schools exactly as they now obtain, but rather those methods and conditions which shall grow up under thoughtful and conscientious experimentation.

The wiser and safer plan is for us to go at the task as our predecessors in the educational field went at the tasks which they found to do and which have resulted in the various movements recognized by the student of education. Wholesale condemnation of the public schools as they already exist is as unwise as the arrogant complacency that refuses to make any change. Fortunately there are already experiments under way, some of them so well established and so successful that they deserve to be called examples rather than experiments.

Beginning, let us say, with the appointment of the Massachusetts State Commission on Industrial and Technical Education in 1905, state activity has spread until now at least twenty-seven states in the Union have some legislative provision for the teaching of industrial subjects as a part of the regular instruction in public schools, and in at least sixteen of these states is there provision for special state aid for industrial training in elementary and secondary schools. Cities like New York, Philadelphia, Milwaukee, and Portland, Oregon, have inaugurated trade schools at public expense as parts of the public school system; New York, Chicago, Cleveland, and Columbus, Georgia, have technical high schools where the boy or the girl may be prepared for the part he has to play in the industrial life of the community. Fitchburg, Massachusetts, and Cincinnati have courses wherein boys employed in local machine-shops may be given instruction in the theory of their trades in the city's public schools. Hardly one of these movements had been started before 1900. Private philanthropy, too, has been active in the founding and support of such institutions as Hampton and Tuskegee, the New York Trade School, the Baron de Hirsch Trade School, and the Hebrew Technical Institute in New York City, the Williamson Free School of Mechanical Trades near Philadelphia, the Wilmerding School and the California School of

Mechanic Arts in San Francisco, the Ranken School in St. Louis, and the new Wentworth Institute in Boston, all for the teaching of trades; and for broader technical training such Institutes as Pratt, Drexel, Lewis, and Bradley. All these, to say nothing of schools abroad, we have to go by in our search for material and in mapping out our courses of study.

Even a cursory analysis of the various occupations possible to the pupils in our public schools reveals certain fundamental groupings. These we may call: *a*, The liberal professions, *b*, The engineering and other industrial professions, *c*, The trades, chiefly connected with engineering and the industries, *d*, Mercantile pursuits, *e*, Agriculture, *f*, Unskilled labor. At the start we may eliminate the two extremes of this list—the unskilled labor as undesirable; the liberal and other professions as already provided for.

VOCATIONAL TRAINING NOT AN INNOVATION.

It is a mistake to suppose that we have not had public vocational or industrial schools in the past; the agricultural and engineering colleges are nothing else. We have now, and have had, plenty of provision for higher technical training. We need waste no sympathy on the boy who can go to college or even thru high school. Such a boy will find open to him the opportunities for school instruction in nearly any occupation he wishes to follow. What the age demands is an equal opportunity for the boy who, thru lack of means or mental inability or any other disabling cause, cannot attain to the higher. We have plenty of schooling at public expense for the commissioned officers of industry; we have little or none for the privates and corporals and sergeants.

This elimination of unskilled labor and the professions leaves us with three classes: 1, the mercantile pursuits, 2, agriculture, and 3, the trades. The development of suitable recognition for these three in the school curriculum is the crying need of the day.

For the mercantile pursuits more than for the other two has provision already been made thru our arithmetic, penmanship, and geography in the elementary school, thru our commercial high schools with their courses in bookkeeping, shorthand, and typewriting, commercial geography, and similar studies. Much more must be done before even a high efficiency, let alone the highest, can be reached. Commercial training we are already committed to; on commercial training in this paper we need not dwell. Neither in this paper need we dwell on training for agriculture, for agriculture is essentially a subject for schools in the rural communities rather than for schools in communities like Kansas City, St. Louis, or

Chicago. In all three of these cities, connected with the schools, can be found small garden plots for the study of plants and earthworms and soil. To the city child few things can have more value for light and leading than such a garden, but we must not delude ourselves into the belief that this is agricultural training. Compared with what must be done in the rural schools the city school gardening is mere dabbling. The rural schools must undertake the training of boys in all that goes to make a successful farmer. Instead of the small garden plot, there must be the real farm, with real pigs and horses and cows, with real crops and real ears of corn that will bring prizes at the fair. The agricultural college must reach down to the elementary and secondary grades.

By far the most important for the city schools is the third classification—the inclusion of vocational instruction for future industrial workers.

PROVISION MUST BE MADE FOR BOTH SEXES.

Here, as in the other two, but here more than in either, comes a fundamental and elemental classification based on sex.

To the girls are possible certain of the professions, certain of the trades, the calling of housewife and mother. Many of those who have aimed to introduce into the schools vocational studies for girls have mistakenly limited the instruction to domestic economy for household use. They have said to themselves, "Most of the girls will become wives and mothers. Even though some may leave the home to go into industry, their absence will be only temporary." Investigations reported in *The Survey* for January 28, 1911, reveal the fact that the problem of women in industry is not merely "a problem of young girls who, after a few years of wage-earning, will devote themselves henceforth to home-making." Fully half (50.3 per cent. exactly), of all the women wage-earners in 1900 were over twenty-five years of age, and almost as large a proportion of those were engaged in manufactures. Much as we need trained wives and mothers, we are falling far short of the need when we neglect to train for their occupations so large a proportion of the girls who enter our schools. We must not delude ourselves by thinking that domestic economy, limited to household cooking and sewing and household management, constitutes industrial and vocational training in any but a very limited sense. We must give girls the chance to learn custom dressmaking, custom millinery, custom cooking, the management of cafe, restaurant, bakery, steam laundry, and boarding house; we must teach girls these things and a hundred

others from the standpoint of their earning for the girl a living outside her own or any one else's home before we shall have satisfied the needs and opportunities for the vocational training of those who will not go to housekeeping, or into the learned professions, or into commercial life, or nursing, or the other things where opportunities for systematic training and education now already exist.

To the boys the bulk of the industries are open. The boys form the bulk of the future workers. For the boys must come the bulk of the industrial teaching.

To the boys the industries present three main grades of positions. Highest in grade, demanding the greatest intelligence and skill, and offering the greatest rewards to the successful, are the professional positions. These are usually to be attained only thru a course at the engineering college. Second in grade are the superintendencies and foremanships, to be secured either thru a collegiate technical training or by promotion from below. Third are the trades, the positions of the journeyman, of the rank and file, who come into their places prepared or unprepared, as circumstances determine. For the highest of these grades we have learned there is much provision; for the other two we have much to provide. How? is the question.

A METHOD OF APPROVAL.

We shall not go far astray in our answer if we examine, first, the nature of the industries and other vocations to determine their subject matter or content and to discover just how far and in what way this subject matter or content is adaptable for instruction, and secondly, examine the purpose and function of the schools and the conditions which there inherently obtain, to determine just how far it is possible or advisable to proceed; in other words, we must make a study of both industry and school to determine the common meeting ground.

Every trade or industry is, for the purposes of our discussion, easily divisible into two parts, the practice and the theory, the hand-work and the head-work. Of these, for the majority of the workmen, the hand-work or hand-skill is paramount. In some trades, notably the shoe workers' and garment makers' trades, where the operator merely tends a machine or performs a single operation, the hand-work alone seems important and the worker becomes only a "hand"; the theory or head-work has all gone into the designing of the machine or is done by the foreman or the man in the office. Trades such as these are properly to be called unskilled or semi-skilled. In other trades, however, like wood pattern-

making, for instance, the work is so intricate and so much must be left to the intelligence of the man at the bench that there is apparently no possibility of separating head and hand. Practice and theory must go together inseparably. The unskilled or semi-skilled trades or occupations are so easy to enter that they are overcrowded; any effort on the part of the schools with respect to them must be directed either towards securing a means of exit from them into something higher, whether in the same industry or some other, or towards keeping the minds of the workers in those trades from becoming inert and dead.

In the skilled trades and occupations there is much that the schools might do in the way of teaching both practice and theory. Certain trades and occupations lend themselves more easily than others to school conditions, but virtually all the common, more important, constructive and operating trades may be taught in the schools. Carpentry, bricklaying, plumbing, steam fitting, blacksmithing, machinists' work, electrical construction, pattern-making, painting and decorating, steam engineering, printing, engraving, lithography, photography,—to name only a few of them—are today being taught and have been taught, both practically and theoretically, in various parts of the country long enough and with enough success to make one feel confident of the outcome.

It is true that in no two schools has there been a uniformity of curriculum or of entrance requirement or of length of course or the other uniformities so dear to the heart of those who would standardize and correlate and tabulate. It is too early for such a uniformity, however desirable it may be; the schools have been widely scattered, founded with endowments or without, or as private commercial ventures, or as parts of public school systems supported from the public purse, and most of them are under ten years old.

STATEMENT OF PRINCIPLES.

Certain basic facts, however, have come to be pretty generally agreed upon regarding the teaching of these trades. The *first* of these is that they all alike require a certain degree of physical and mental maturity on the part of a boy wishing to enter any one of them, namely, the mental and physical maturity of the average boy of fifteen or sixteen, preferably sixteen. In other words, it appears not to be wise to undertake the teaching of a trade to the average boy before he reaches the age of at least fifteen. This, in conjunction with the acknowledged inadvisability of too early a specialization, would seem to dispose once for all of the efforts

of some of our friends to inaugurate the "elementary trade school." Trade teaching appears to be fundamentally a "secondary school" task. *Secondly*, it appears that a boy can learn a trade well even tho he may not have been graduated from the elementary school, that the traditional school tests of percentages in spelling and arithmetic and history are no criteria of a mechanical bent any more than they are a test of character. This would indicate that the entrance requirements to industrial courses should not to any great extent be based on any previous record for scholarship. *Thirdly*, we are coming to agree that no adequate preparation for an industrial pursuit, certainly not for a trade, can be given in any brief course, say less than two or three years, or better, four years of constant application. *Fourthly*, it has become clear that the hand-work, the attainment of skill and rapidity in the manual operations, is, at the bottom, the main thing in most of the trades in the foregoing list, and that with the hand skill and such theoretical knowledge as the boy or man of average intelligence will pick up incidentally therewith that boy or that man will make a fairly successful and fairly satisfactory journeyman. *Fifthly*, it has become equally clear that the more a boy or a man can acquire of the theory, in addition to the essential hand skill, the better his chance of promotion to a foremanship or a superintendency. We have learned also, that *sixthly*, the theoretical instruction in all these trades can be included for the most part under applied drawing, applied mathematics, and applied science; that, *seventhly*, this applied science, applied mathematics, and applied drawing must thruout deal for each boy with the particular trade he is learning; that, *eighthly*, it is possible in shopwork and in theoretical work to group several allied trades together on the basis of their common content; that, *ninthly*, all the instructors giving this instruction, and most emphatically the instructor in shopwork, must have had actual experience in and first hand acquaintance with the trades under commercial conditions; and, *lastly*, we have learned that this kind of education costs a good deal of money.

IN THE ELEMENTARY SCHOOL.

I said a moment ago that in this wide-spread and increasingly persistent plea for vocational training there is no question whatever of eliminating or reducing or sacrificing the essential elements of our present education. In the elementary school particularly it could not be otherwise. All intensive or specialized vocational training is pre-eminently unsuited to pupils below the age proper to the secondary school. The

elementary school must always continue to offer to all pupils and require all pupils to receive the basic elements of knowledge and culture. It must always include reading, writing, arithmetic, language, history, geography, drawing, manual training, gardening, in short, all those things that open up the world to the growing child. The elementary trade school cannot exist, if by that term we mean a school wherein children under the age of fourteen shall be trained to perform the arduous and intricate operations involved in the pursuit of a trade. In this as in all things the elementary school can only be rudimentary and general; it can (and should) open up to the pupil, in a way more or less general, the avenues to industrial activity as it opens up to him the other activities of life. It should open up these avenues to all pupils as part of the thought content and culture content of the community, even tho some of the pupils may not later go into industrial pursuits. The industrial activities of the age are so important that any child who is denied an insight into these activities is seriously handicapped.

The elementary schools can do this by intensifying and giving an industrial bearing to subjects already in the curriculum, by taking, for example, problems in drawing and arithmetic directly from the industries, by including the industrial history of a nation in with its political, by giving its geography a strong industrial emphasis; and chiefly can the elementary schools do this thru the medium of manual training—not manual training for one or two half mornings a week in the two upper grades, but manual training for a much greater part of the time from the kindergarten up, manual training in wood and metal and cloth and leather and brick and stone and cement, so handled that by the time for graduation the average boy shall be familiar with the elementary, basic processes and materials and machines and tools employed in the world's manufacture and the world's building. The work should be organized and conducted to the end, first, that he may know as a matter of general culture, something about the physical resources and achievements of the community; secondly, that he may have a first hand, even tho it may be slight, acquaintance with the various occupations open to him as a help in making his choice; and thirdly, that he may have a working capital of theoretical knowledge and manual skill and dexterity to aid him in getting a start and in progressing more rapidly in the calling he does choose. Even the little manual training the pupil gets now is a valuable industrial asset to him, especially if he enters any woodworking vocation.

AFTER THE ELEMENTARY SCHOOL.

With the close of the pupil's elementary school life—be it the day of his graduation or his fourteenth birthday or between these two—comes the parting of the ways. The great majority of boys, as we all know, never start the high school, or, having started, soon drop out, forced into gainful occupations thru depletion of the family exchequer or lured away from their studies by the prospect of doing something more interesting and earning money while doing it. For these boys within the past five years three forms of public school provision have in one place or another been inaugurated. These are the intermediate industrial or vocational school, the separate trade school, and the vocational, industrial, or technical high school.

In order to understand these three forms of schools it is necessary at this point to make a distinction between vocational, industrial, and trade training. *Vocational training*, as the word *vocational* would indicate, is training of any sort for a vocation of any sort. It is the broadest term one can use in discussing this sort of education; it includes all vocations, whether trade, industrial, commercial or professional. *Industrial training*, a narrower term, is that vocational training that pertains to the industries. And *trade training*, the narrowest of the three, is that part of industrial training that has to do with fitting boys and girls to earn a livelihood in the exercise of a vocation called a trade. A failure to observe these simple distinctions has resulted in much confusion and been the cause of much unnecessary and futile argument.

The intermediate industrial or vocational school is being inaugurated as an experiment by several cities. It aims to fill a gap between the elementary and the high school, or to reach the boy between the ages of fourteen and sixteen. Usually some one school building has been chosen as a center and the more mature backward boys and girls are being sent to it. The Elementary Industrial School at Cleveland may be taken as an example. The requirements for admission to this school are that pupils "shall be at least two years behind grade, that they should either have finished the sixth grade or have failed to finish it and would therefore become 'repeaters'." The academic instruction includes English, arithmetic, geography, history, and hygiene, all taught in such a way that thru narrowing the field and intensifying instruction the pupils may "secure insight into and control of a few important and fundamental things." On the practical side of boys have shopwork in wood and sheet metal, mechanical drawing, freehand drawing, and design. The girls have

household arts, including cooking, both machine and hand sewing, garment making, freehand and mechanical drawing, and design applied in various crafts. About half the day is spent in book work, the other half in shopwork. The school aims "to offer substantial book training with selected subject matter based upon the immediate needs of retarded pupils, coupled with a training in the practical arts that underlie industry. It seeks primarily to develop intelligence, yet at the same time endeavors to give skill in work." (Superintendent's Report, 1909, p. 61). This school, as we have noted, exists for the retarded only; similar courses for normal pupils have been devised at the International Industrial School of Albany, New York, and at the Rochester Shop Schools. In the former the plan is to take "two years of the elementary period and two years beyond, children entering at about thirteen or fourteen." In the latter, the plan is to receive "boys from fourteen years of age who were in the sixth, seventh, and eighth grades, and who were manifestly of a mechanical turn of mind. . . . The weekly program is evenly divided between shop and academic work, . . . but almost all the academic work is based on industrial conditions or needs." (Proceedings N. E. A., 1910, p. 730). The curriculum of the school covers elementary and advanced woodworking and elementary and advanced machine and electrical work.

I have dwelt at length on this form of school because it is of supreme importance that something be done for the boy or girl who naturally drops out of school at the age of fourteen, as soon as the law allows.

The separate trade school as a part of the public school systems has been established in several cities, notably Philadelphia, Milwaukee, and Portland. The tendency is to place these schools on a secondary basis by requiring as a prerequisite for admission that the boy have graduated from the elementary school or have reached the age of sixteen or both. The course varies from two years to four and the curriculum from simple and rigid adherence to the shopwork of the trade with mathematics and drafting to these things with a large part of a high school course in addition. Such a school deserves its name and keeps itself from becoming confused with the vocational or technical high school by selecting a list of trades to teach and by closely holding each boy to his chosen trade, preparing him to step out from the school fully prepared to make his way in the world by working at that trade. It requires the closest kind of concentration and the

greatest thoroughness. It is judged by the success of its graduates as journeymen.

The vocational, industrial, or technical high school has been successfully established in New York, Cleveland, Chicago, and elsewhere. It differs from the ordinary manual training high school in the intensity and practicality of both the handwork and the theory. It resembles the trade school on the one hand, especially in the shop practice and shop theory; on the other it resembles the engineering college. It might be called a combination of the two, with the engineering work adapted to students of high school grade. Some of its graduates will enter the trades as journeymen or as advanced apprentices; most of them, however, will go into the industries fitted for clerkships, draftsmanship, and minor executive positions. Some will go on to the engineering colleges.

THREE TYPES OF SCHOOL COMPARED.

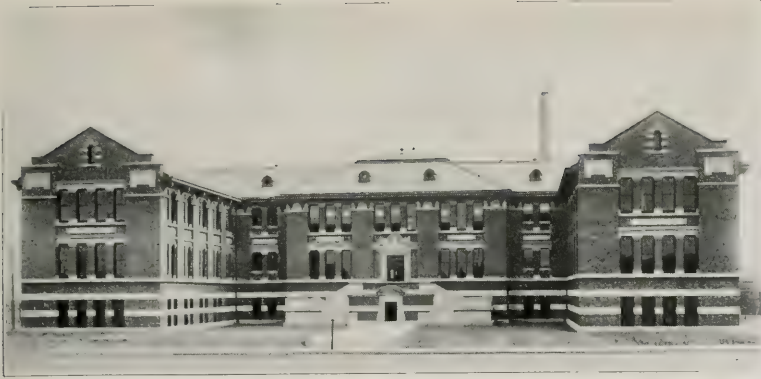
If you were to ask my opinion as to which of these it is advisable to work for, I should answer that every community of any size stands badly in need of all three. It needs the intermediate industrial school that those boys and girls who are backward with their heads may be given a chance to learn how to do something remunerative with their hands, and that those who are destined to go into the trades and other industrial occupations at the earliest moment may have the means of making a wise choice and securing some start in the occupation chosen. It needs the trade school for the training of its skilled labor. It needs the vocational or technical high school both for the better training of its prospective journeymen and for the furnishing of opportunity for the brighter boys either to go on to the engineering college or to secure a training that will enable them to fill the more remunerative positions that lie between the position of the journeymen and the college trained engineer.

If you were to ask me which of the three could be dispensed with in a public school system, or, rather, which should be started first I should not feel so sure, but I would answer, according to my present way of thinking, that while the trade school is in many respects as important as the other two and in some respects more important, I believe the more general vocational school—either the intermediate or the high—will reach more pupils, will be less costly, and will for many pupils fulfill almost if not quite as well the function of the more limited trade

school. In a trade school the annual per capita cost will hardly run below \$150 and is more likely to run between \$200 and \$250. No trade school can undertake all the trades, and it is doubtful in my mind whether it is right for a democratic community to offer training in its public schools in some trades and not in others. In the more general vocational schools there is less danger of committing this evil because the instruction can be given in groups of trades rather than in single trades. Private philanthropy may possibly come to the rescue in this regard as it has already come to the rescue in Boston and St. Louis.

However this may be, one thing is certain, that the country is on the eve of a great era of industrial and vocational education. This education must be under the auspices of the public schools. It behooves the schools to respond to the new demand even as they have responded to the demands of the past, to respond to this demand promptly and eagerly, to respond to it so thoroly, so efficiently, and with so careful an adjustment of subject matter and method to the needs of the pupil on the one hand and the needs of the vocations on the other, that the pupil will find himself fitted to take his place in the army of workers, a good citizen knowing his duty to society, fully equipped to perform that duty.

THE PRESENT SYSTEM MUST CHANGE IF IT IS TO MEET THE NEEDS OF THE FUTURE. MY PLEA IS FOR A TREMENDOUS EXPANSION OF THE VOCATIONAL, INDUSTRIAL, AND TECHNICAL SIDE OF EDUCATION, SO THAT THE CHILDREN SHALL NOT LEAVE SCHOOL WITH A BROAD SMATTERING ONLY OF ALL KINDS OF KNOWLEDGE, BUT SO THAT THEY SHALL BE PREPARED TO DO THE WORK OF THE FUTURE; SO THAT THEY SHALL BE ABLE TO DO EVERY FORM OF WORK WELL IN THE SHOP, IN THE FACTORY, AND IN THE HOME.—Theodore Roosevelt.



THE DAVID RANKEN, JR., SCHOOL OF MECHANICAL TRADES.

THE DAVID RANKEN JR. SCHOOL OF MECHANICAL TRADES, ST. LOUIS, MISSOURI.

FRANK M. LEAVITT.

THE David Ranken, Jr., School of Mechanical Trades offers courses in carpentry, pattern-making, bricklaying, plumbing, painting, and steam engineering to boys of fifteen years of age or over who have completed the work of the sixth grade or who have an equivalent education. The school is in session seven hours a day ($3\frac{1}{2}$ hours on Saturday), for ten and one-half months of the year. The classes are taught by men who have a thoro and practical knowledge of their respective trades. The work is confined exclusively to the specific trade and the drawing, mathematics, and, in the second year, the science of that trade. During the first year the weekly program provides for twenty-eight and one-half hours shopwork, six hours drafting, and four hours mathematics. The school is, therefore, a typical trade school.

PLACE OF THE TRADE SCHOOL.

In a previous article we attempted to determine the position, in the general educational plan, occupied by pre-vocational or elementary industrial schools. We found that the acknowledged purpose of such schools is to enhance the value of the work in the upper elementary

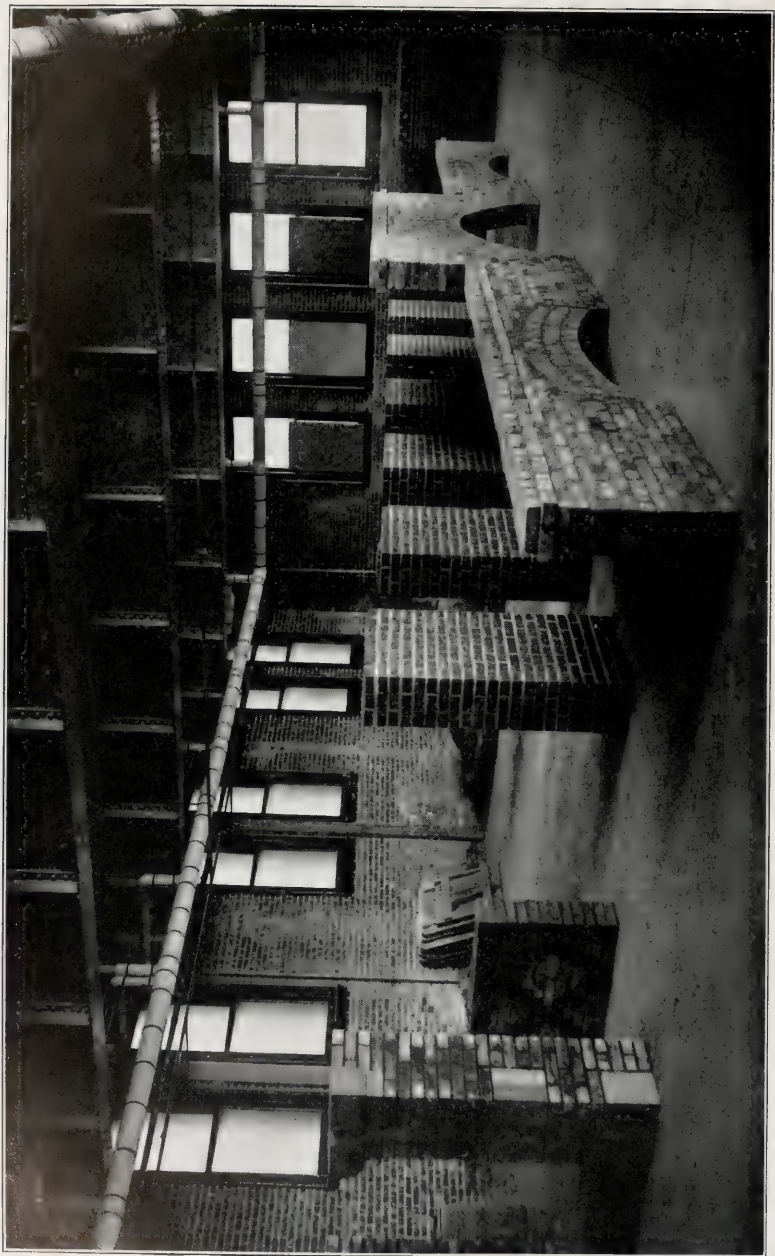


FIG. 1. WORK OF THE CLASS IN BRICKLAYING.

grades by incorporating in the course of study subjects which appeal to the vocational interests of large numbers of our boys and girls. In other words, we found that these schools serve a general educational need by frankly recognizing the importance of the vocational motive in elementary education, thereby prolonging the school life of the child.

PLACE OF THE TRADE SCHOOL.

Perhaps there is no better way of suggesting the magnitude of the new conception of the term "industrial education" than to study the "trade school" because this institution stands at the other extreme in the educational plan. It is a "finishing" school, and prepares directly for some occupation. What the law school is to the future lawyer, or the normal school is to the coming teachers, the trade school is to the young man or woman who desires to become proficient as a skilled industrial worker.

It may be objected that it is the technical institute, rather than the trade school, which marks the upper limits of industrial education, but reflection will show that the educational work of the graduates of such institutions should be classified as professional rather than as industrial. It is, of course, entirely possible that the trade school graduate may later enter upon a course of technical engineering, but such a case would undoubtedly be the exception, and certainly this possibility should not strongly influence the educator in arranging courses of instruction for the trade school.

Unlike most finishing schools the trade school does not require, for entrance, an elaborate preparation in some lower school. Commonly, an age requirement is substituted for the educational requirement, and the pupil is eligible only after he has reached his fourteenth, fifteenth or sixteenth year.

The trade school, being a finishing school, the pupil enters it only when he has definitely determined what occupation he desires to follow. In accordance with this conception, the trade school eliminates from its courses of study all extraneous and irrelevant matter in a way which the conservative educator feels to be ruthless and inconsistent with the aims of any institution which claims to be a "school." Much of the matter excluded from the course of study is that which is sometimes designated as cultural, and this also leads the educator to feel that the trade school is distinctly inferior as an educational institution. It is, therefore, pertinent to examine the purpose and plan of this type of



FIG. 2. PAINTING DEPARTMENT.

school and to determine whether, on the whole, the schools are not justified in their procedure.

Within the past five years several public trade schools have been established or have been taken over by public school authorities after having been successfully administered for a time under private control. Prominent among these may be mentioned the Manhattan Trade School for Girls, New York City, the Philadelphia Trades School, the Milwaukee School of Trades for Boys and the Milwaukee School of Trades for Girls, the Girls' Trade School, Boston, the Portland School of Trades, Portland, Oregon, the Worcester Trade School, Worcester, Massachusetts, and the State Trade School, Bridgeport, Connecticut.

Of the endowed trade schools founded within the same period, none will better repay study than the David Ranken, Jr., School of Mechanical Trades, Saint Louis, which it is the purpose of this article to describe.

FUNDAMENTAL PRINCIPLES.

Varying in several more or less important details, these recently established schools reach essential agreement in the following fundamentals:

1. Pupils having arrived at a required age, and possessing the ability to do the work satisfactorily, are admitted without reference to their previous position on the educational ladder.
2. The occupational purpose of the work is made paramount.
3. The school is not intended to prepare for some higher institution, but to enable the pupil to make a successful entry into his vocational life.
4. This is to be done by familiarizing the pupil with the processes of a specific industry by means of actual *participation* in those processes, not by studying *about* them.

The David Ranken, Jr., School of Mechanical Trades was made possible by the generosity of the donor whose name it bears, its liberal endowment making it essentially a free school; for while the tuition amounts to \$30.00 a year, the actual per capita running expenses average six times that amount.

The foundation deed of the school bears the date of November 29, 1907, and the school opened its doors to pupils for the first time on September 7, 1909, with twenty students in attendance.

The purpose of the school is clearly shown by the following quo-



FIG. 3. WORK OF THE CLASS IN CARPENTRY.

tations, the first from the Foundation Deed, and the second from the 1911 report of Superintendent Lewis Gustafson.

"Whereas for many years I have been impressed with the fact that too little attention is given to the instruction of boys in the mechanical trades, and that the public schools and other free educational institutions have a tendency to create in the minds of the young, as well as in the community, a prejudice against manual labor, and the idea that common work is not respectable, so that a false impression and a false pride often influence boys and young men to avoid the mechanical trades in which they might have succeeded, in order to follow pursuits for which they are unfitted and branches of business which are overcrowded and in which they would probably not succeed, I am satisfied there is need of an institution the object of which shall be education and instruction in the ordinary mechanical trades and in which boys, especially, may be taught the dignity of labor."

"The aim of the Ranken School may be summarized as the training of efficient mechanics who shall take a pride in the proper performance of their work and who shall have such knowledge and such skill as will enable them to meet intelligently whatever demands that work shall lay upon them. While it is not the aim primarily to train foremen and superintendents, it is the expectation that within a few years after graduation many of the students, by virtue of the training they have received, will be enabled to rise to positions of responsibility or go into business for themselves."

It should be observed that while the school is undoubtedly ambitious for its future graduates, it plans to fit them for the higher positions, if at all, only by enabling them to rise from the ranks thru successful work. On the other hand, it teaches no trade *which is not open at the top*, which does not, in other words, consist of work which is in itself educative because it combines thinking with action. As fairly illustrative of all the courses we may examine in detail the work offered in carpentry as outlined in the catalog.

COURSE OF STUDY IN CARPENTRY.

The instruction offered in this department aims to cover thoroly the work of the carpenter and joiner, with particular emphasis on housebuilding. Students work from drawings and blueprints thruout.

Shopwork

FIRST YEAR.

- Ia (First Term)—Names and uses of tools, with instructions as to their handling and care. Exercises in joinery.
- Ib (Second Term)—Joist framing and setting. Bracing. Spacing. Practical use of joinery exercises in framing sills, plates, girders, and ties, and fitting in braces. Use of nails, bolts, stirrups, and camber rods. Machine planing, sawing, and working moldings. Tool grinding. Setting up machines.

Ic (Third Term)—Making window-frames, sash, doors, blinds, and various kinds of moldings. Paneling. Millwork in general.

SECOND YEAR.

IIa (First Term)—Roof framing. Cornice setting. Shingling. Making and setting centers, columns, and supports. Interior finish, such as jamb casing, baseboarding, fitting and hanging doors and transoms, and setting ceiling beams. Putting on hardware.



FIG. 4. PART OF THE CLASS IN BRICKLAYING.

IIb (Second Term)—Cabinet work. Building stairs, handrail, ramps, and easings.

IIc (Third Term)—Erecting complete buildings and full sized sections of buildings in the school shop.

Lectures—During the course informal shop lectures are given on such subjects as the following: The proper care of edged tools. The various woods used in building and their proper selection and treatment. The measurement of lumber. Glues, nails, screws, bolts, nuts, pins, straps, and other fastenings. Framing, shoring, and underpinning. Roofs, trusses, spans, and beams. Stair building. Woodworking machinery. Paints, shellacs, and varnishes. Fire prevention devices. The steel square. Building ordinances of St. Louis.

THIRD YEAR.

An additional third year of instruction in roof framing, roof trussing, stair building, and cabinet work is offered for those who have completed the work of the two-years' course, or its equivalent. Students in this third year will be permitted to specialize at the discretion of the instructor.

Supplementary Instruction—Applied Mathematics.

FIRST YEAR.

Ia (First Term)—Arithmetic. Fractions, decimals squares and square root, cubes and cube root, areas, volumes.

Ib (Second Term)—Elementary geometry. Chiefly the measurement of angles, chords, and arcs; areas of triangles, rectangles, circles, and irregular figures; cubic contents of tanks, bins, cylinders, cones, and other bodies. Percentage, proportion, discount. English and metric systems of weights and measures.

Ic (Third Term)—Formulæ. Simple fundamental processes involving one or two unknown quantities, in so far as these are necessary in the handling of formulæ commonly found in handbooks and books of reference for tradeworkers or in the solution of useful geometrical problems. Practice in working problems by formulæ.

Special emphasis on measurement of lumber, area and cubic contents, and on geometrical problems involved in roof framing, stair building, and the use of the steel square. Estimates.

Drafting

FIRST YEAR.

Ia (First Term)—General use of drawing instruments. Freehand lettering and sketching. Geometrical problems relating to the trade. Joinery exercises.

Ib (Second Term)—Details of fences, sheds, and stables. Joist framing. Stud-ding. Girders and trusses.

Ic (Third Term)—Scale and full size details of window-frames and sash. Door-frames and doors. Details of stairs and interior finish.

SECOND YEAR.

IIa (First Term)—Plan reading and preparation of working drawings. City building ordinances.

IIb (Second Term)—Working drawings consisting of $\frac{1}{4}$ " scale plans, elevations, and sections of houses and cottages with $\frac{1}{2}$ " details.

IIc (Third Term)—Tracing and blueprinting. Specifications. Taking off quantities.

Applied Science—Given in Second Year Only

IIa (First Term)—Applied physics. Properties of materials used in the trades.

Force in its various forms. Levers, booms, derricks, and hoists. Study of ropes, timbers, boilers, pipes, and joints, when under stress. Holding pow-



FIG. 5. CLASS IN FRAMING.

er of nails, screws, glued joints, cement, and mortar. Bearing power of soils. Wind pressure and snow loads. Water circulation. Expansion of pipes, etc., due to heat.

IIb (Second Term)—Applied chemistry. Chemical elements and their general properties. Water impurities. Oxidation, rust, corrosion. Heat. Combustion. Study of gas and steam. Acids and their action. Study of materials, such as oils, cements, mortars, wood, brick, and tile, and the various metals used in the trades. Deterioration of materials from the action of gas, heat, moisture, and frost.

IIc (Third Term)—Continuation of IIa and IIb. Practical methods in building measurements. Practice with the builder's tape, transit, and level. Mathematical problems based on these measurements. Building construction and city ordinances.

Brief statements of the other courses follow:

Pattern-making. Pattern-making covers architectural and machine pattern work and includes the making of patterns for pipes, columns, panels, stairwork, pulleys, fly-wheels, steam cylinders, engine frames and beds, and spur, bevel, and worm gears.

Bricklaying. Fig. 1 shows some of the work in this department, and Fig. 4 shows part of the class at work. Through a series of examples the student is introduced to every type of bricklaying employed in the erection of buildings and receives instruction and practice in the work.

Plumbing. The course in plumbing is planned to meet completely the needs of the practical plumber.

Painting. Instruction in painting includes house, sign, and fresco painting and aims to give ability to plan appropriate schemes of interior and exterior decoration, and to furnish the necessary technique of the practical workman. The decorations shown in Fig. 2 are not intended to be permanent, but are merely "exercises" on a practical scale.

Steam engineering. The course in steam engineering aims to give a complete practical and theoretical knowledge of the duties of the stationary engineer. It involves the daily operation of the school power plant, and the visits to other power plants and to factories.

A study is made of fuels, the chemistry of combustion and the construction of boilers. Consideration of pumps, steam engines, steam turbines, gas engines, valve setting, gage reading and testing, motors and electric lighting, are included in this course. Elementary machine-shop work is also given.

The courses are planned to cover a period of two years, with the possibility of special advanced work on their completion. Progress thru the courses, however, varies with the individual.

During the second year, instruction is given in applied science in all courses, and informal shop lectures are given for the purpose of broadening the outlook of the pupils.

EQUIPMENT.

The physical equipment of the school is adequate to the subjects now taught, and most of the work done is of a thoroly practical nature as will readily be seen by referring to the illustrations. On the other hand, it should be stated that a fundamental principle of the school is to give what may be called intensive training in the *technique* of the trade, eliminating almost entirely the commercial product, interest in which, it is thought, might possibly divert attention from the legitimate business of the school. Thus, while men are taught, in the carpentry class, every phase of frame house construction, the building erected by the pupils is, nevertheless, an incomplete, temporary structure, being torn down at the end of the year, see Fig. 3. It is claimed that the

work of wrecking the building contributes to the education of the pupils, as they are taught to demolish the work with the least expenditure of time and the maximum saving in material, and because carpenters are constantly required to do this kind of work.

It may be said, parenthetically, that in this particular the school shows a marked variation from the type. The Superintendent, how-

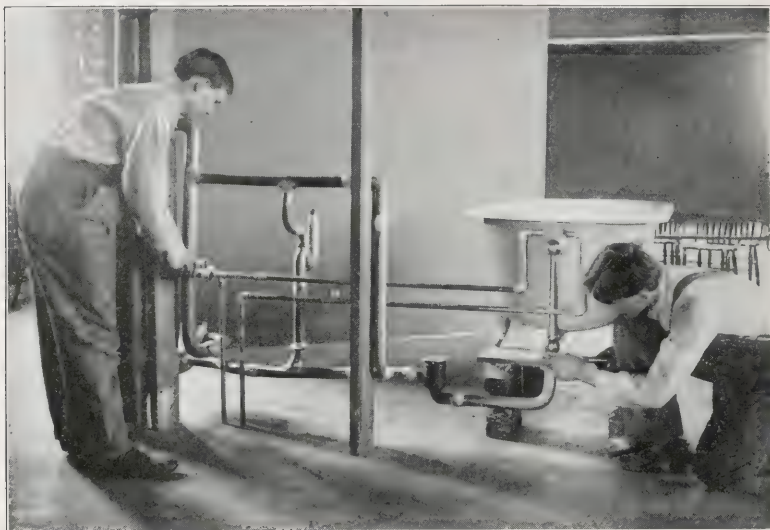


FIG. 6. WORK OF THE CLASS IN PLUMBING.

ever, maintains that the school occupies a middle ground; it neither proposes to duplicate the general educational work of the high school on the one hand, nor to become an industrial plant on the other. It is a trade school, but it aims to make trade instruction contribute to the mental, moral, and social well-being of the boy by utilizing every available hour in the doing of *new* work requiring close application and constant intellectual reaction. The school believes in the dignity of work, the educative value of combined thinking and doing, and the cultural value of efficiency whether manual or mental. It is safe to predict that it will not be deflected from its avowed purpose, either by the glamor of traditional educational ideas regarding the superiority of pure science, pure mathematics, or pure design, or by the attractions of the commercial product system.

ENROLLMENT.

The membership of the school is not at present large, but it is constantly increasing. The writer called at the school on the opening day in September and found eighty-two students in attendance, about evenly divided between former pupils and those enrolling for the first time. The attendance on the fourth day of the term was ninety-six, an increase of twenty-one over the figures for the corresponding day last year. By the beginning of the second month the enrollment of regular day pupils had reached one hundred and twenty-two. This enrollment, which, by the way, includes twenty-five from outside of the city, and five from other states, will undoubtedly increase materially.

The members of the day classes appeared to be younger than one expects to find in a trade school. Boys are admitted at fifteen and the average age seemed not far beyond this mark. The graduating class of 1911 numbered 18, and the ages of these boys on entrance, the distribution among the several trades, and their previous schooling are shown by the following table:

AGE AT ENTRANCE—GRADUATING CLASS JULY, 1911.

Ages	Carpentry	Plumbing	Steam Engineer'g	Painting	Total	Schooling				
						Elementary			High School	
						6th	7th	8th	1st	2d
15-16	3	1	2	.....	6	.....	1	2	2	1
16-17	1	1	1	.....	3	1	1	1	.....	.....
17-18	1	4	.....	1	6	.....	2	2	2	.....
18-19	1	2	.....	.....	3	1	.....	2	.....	.....

In addition to the day classes there is a large evening school, in session four evenings a week from October to March inclusive, designed to meet the needs of mechanics, either journeyman or apprentices, already at work in the trades.

There is also a cooperative course for apprentices in the machinists' trade, fifty of whom receive instruction in drawing and mathematics

two mornings a week. The tuition is \$5.00 a term, or \$15.00 a year, and is paid by the employer who also permits the apprentice to attend without loss of wages. All arrangements are made in accordance with an agreement between the school and the Saint Louis Branch of the National Metal Trades Association.

The enrollment in all classes for the school year 1910-11 was 159 regular day pupils; 58 metal trades apprentices; 248 night school pupils; total 465.



FIG. 7. WORK OF THE CLASS IN PLUMBING.

OUTLOOK FOR THE FUTURE.

A school which has been in existence but two years should be judged not so much by its present accomplishment, however noteworthy it may be, as by its hopes and plans for the future. The school as it stands at present is apparently but the beginning of a highly diversified institution. The beautiful and commodious building which it now occupies is but one of a group of buildings now quite definitely planned, and the additions already contemplated will cost in the vicinity of \$250,000. New subjects will be added as soon as demanded by the constituency of the school, and it is expected that plans will be made for reaching the boy of fourteen, and for enriching the more elementary trade courses, to be provided for him, with some general educational work.

The location is thought to be ideal. Recently several industrial plants have been built in the vicinity, replacing former dwelling houses. It is expected that, in the near future, the school will be the center of a district which is both industrial and residential containing the homes and the workshops of a population which the school can effectively serve, not only vocationally but socially as well. It is for the ultimate fulfillment of this larger purpose that the school is being steadfastly developed.

MODERN EDUCATION SHOULD FIT THE GREAT MASSES OF THE COMMUNITY FOR THE WORK WHICH THEY WILL HAVE TO DO IN ORDER TO EARN THEIR LIVING, AND THE RATIONALIZATION AND THE VOCATIONALIZATION OF EDUCATION IS GOING TO BE THE MOST IMPORTANT ELEMENT, IN MY JUDGMENT, IN THE MANUFACTURE OF MAN AND THE DEVELOPMENT OF THE RIGHT KIND OF MATERIAL. IT IS NOT A MATTER OF WHO SHALL DO THE DIRTY WORK OR OF TRAINING ONE-THIRD OF THE COMMUNITY TO WORK WITH THEIR HANDS AND, THEREFORE, OF EDUCATING THEM AS A PERMANENTLY INFERIOR CLASS. ON THE CONTRARY, I BELIEVE THAT THE COMING MAN, THE SUPERMAN, IN MR. BERNARD SHAW'S PHRASE, IS GOING TO BE THE INTELLIGENT, EDUCATED CRAFTSMAN, THE MAN WHO WILL WORK WITH HIS FINGERS AND WITH HIS BRAIN AT THE SAME TIME, THE MAN WHO KNOWS ALL THE SCIENCES AND ALL THE HISTORY AND ALL THE OPERATIONS OF THE VARIOUS CRAFTS.—Dr. Woods Hutchinson in an address on "The Manufacture of Man."

PRE-APPRENTICESHIP SCHOOLS OF LONDON.

EDWIN G. COOLEY.

MR. Robert Blair, Education Officer of the London County Council, in an address to the Imperial Educational Conference held in London in the summer of 1911, made the following statement of the need of vocational training for the English youth.

Of the total industrial population of England and Wales employed in factories and workshops London holds one-seventh. London engages one-quarter of all the clerks in England and Wales. Besides this vast industrial and commercial system, there are in London enormous services of a more or less unskilled character. One-quarter of all the men and boys over fourteen years of age are engaged in unskilled employments. About one-third of the children leaving the elementary schools enter a form of occupation which can by any stretch of imagination be called skilled. The remainder drift into unskilled occupations where, for the most part, they learn little that is useful, and where the mental and moral effects of their school training are too soon dissipated. Seventy per cent. of the London dock laborers have been born in London; the skilled trades are largely recruited by immigrants; newcomers from home and abroad constituting one-third of the London population. The system of indentured apprenticeship has largely disappeared. An exhaustive inquiry made for the County Council in 1906 showed that it would appear to be only a waste of time and money to attempt to revive an obsolete system.

In consequence of extensive competition and of extensive subdivision of labor, opportunities for an all-round training can scarcely be said to exist in the London workshops. In one direction the skill developed is extreme, but the training is either one-sided or no training at all; and a change in the circumstance of a trade generally means a new venture in life for many of its workers.

London is not the only city of which these things are true. They exist in Liverpool, in Birmingham, in Leeds and so on; but because of its great size, and the almost infinite variety of its activities, these things exist in a more intense degree in London; the struggle is greater, success is greater for the more adaptable; failure involves greater disaster. In London, therefore, with the endless possibilities of dislocation of occupations and with its enormous services of an unskilled character, the first essential quality for the worker is character to keep his head up under changing circumstances; and the second (perhaps the same as the first), is a genius in adaptability. Character and adaptability are the aim of the whole educational system. But in addition to all the general efforts in this direction, something of a specific character can be done, and is being done, for those pursuing or intending to pursue an industrial career. The curriculum of the Central Schools has an industrial or commercial bias. The evening schools make some provision for those wholly occupied in the daytime. For those who can secure a half-day or two half-days per week of "time off" from their daily employment, "part-time" classes are provided. For those who

have not yet entered upon an industrial career, but who are prepared to give an undertaking to enter specific skilled occupations at or about 16 years of age, the trade schools have been established.

CHIEF PRODUCTIVE INDUSTRIES OF LONDON.

Some statistics founded on the census of 1901 throw light on the situation. In 1901, there were 1,098,106 men in twenty-five groups of occupations; 391,411 under twenty years of age, of whom 92,944 attended evening classes. There were 1,422,423 women in 28 occupations; 420,475 under twenty years of age, of whom only 68,920 attended evening classes. In 1906, London had 740,256 children in the elementary schools.

The industrial and technical classes supplementing these evening classes are made up of children taken from the elementary schools during the last years of the school course, no child being admitted to the trade schools under thirteen years of age. Attempts were made to base the organization of these schools upon the productive industries of London. According to the census of 1901, the numbers in these industries were as follows:

Dress, 220,000: tailors, milliners, dressmakers, shoemakers.

Building, 143,000: carpenters, joiners, bricklayers, painters, decorators, glaziers, plumbers.

Printing, 96,000: printing, lithographers, bookbinders.

Engineering and Machine-Making, 94,000: blacksmiths, fitters, etc., metal trades, shipbuilding.

Furniture, 62,000: cabinet-makers, and french polishers, upholsterers.

Precious Metals, Watchmaking and Instruments, 39,000: gold and silver smiths, jewelers and watchmaking, electrical apparatus making.

Skin and Leather, Hair and Feather, 27,000: leatherworkers, saddlers and harness-makers, hair and feather workers.

Chemical, 20,000.

Textile, 15,000.

Food, Tobacco, Drink and Lodgings, 188,000.

The first type of vocational schools mentioned by Mr. Blair is the

CENTRAL SCHOOL.

Besides the ordinary elementary schools, the London County Council has recently organized a certain number of Central Schools providing general instruction, but with a commercial or industrial bias. These schools are organized with a view of providing for boys and girls who can remain in school until over fifteen. The city of London has been divided into sixty districts; and it is expected that each district will

be provided with such schools. Pupils are taken from the ordinary schools between the ages of eleven and twelve, and are chosen partly on the results of the competition for Junior County Scholarships and partly on the results of interviews with head teachers and managers. Some of the pupils above the age of fourteen receive financial assistance from the County Council.

These schools are modifications of the older Higher Elementary Schools, and are distinguished from the ordinary elementary school by the fact that the pupils are selected and go thru a complete four years' course with a special curriculum. They are unlike the older secondary schools with a commercial bias in the fact that they provide free education, and have a curriculum framed with a view to enabling pupils of 15½ years of age to earn a better living. It is claimed that the training secured in these schools prepares for apprenticeship at sixteen, but, in view of Mr. Blair's statement about the decline of apprenticeship, this consideration is not very important. Whether such schools will be of more practical value than the ordinary elementary and secondary schools is uncertain. They seem likely to be dominated by the same ideals; to be managed in the same general way; and taught mainly by teachers with only the usual academic training.

Up to the present time, 39 such schools have been organized; 13 with an industrial bias, 13 with a commercial bias, and 13 with both an industrial and commercial bias.

EVENING SCHOOLS.

Coming more directly to the subject of vocational training given to workmen in England, we find that they mainly obtain their technical education, so far as schools are concerned, first, in evening classes; second, in technical day classes.

In the words of Mr. Blair—"No one can understand the system of technical education in England who has not fully grasped the meaning of the evening school work. In these evening schools are to be found those students who have felt most the need of education; those who are prepared to make the greatest sacrifices for it, and consequently those who gain benefit from it. The efficiency of the system is, however, limited by *the exhaustion of the long day's toil before the evening school begins.*" (Italics mine.)

These evening schools are of three kinds:—*free schools, ordinary evening schools, and commercial and science and art centers.* In the free schools, instruction is provided in the usual academic subjects of

reading, writing and arithmetic, English, history and geography; as well as in a long list of subjects including vocal music, gymnastics and physical drill, swimming, first aid, home nursing, cooking, laundry work, millinery, dressmaking and needle work. In some of the schools an industrial course in technical drawing and workshop arithmetic is taken preparatory to the industrial course at the technical institutions. Instruction is also given in woodwork, wood carving and metalwork.

In the "ordinary evening schools" practically the same subjects are taught, but the work is of a more advanced character. In addition, elementary instruction is given in commercial subjects such as book-keeping, shorthand, typewriting and office routine. Students are also prepared for the examinations for the minor appointments in the civil service. Classes are held in many schools for courses in English literature and foreign languages.

The commercial centers provide courses covering two or three years, consisting of two or three subjects so arranged as to provide a progressive course of study. Students under eighteen years of age are admitted to the centers only on the condition that as a rule they join a course and guarantee to attend regularly for at least three evenings a week. In addition to the more advanced work in the commercial subjects taken in the ordinary schools, such subjects as accounting, banking, commercial law, etc., are taken.

Science and art centers provide elementary and intermediate instruction in science and art subjects leading up to the advanced work in the technical institutions and schools of art and the polytechnics. The free and ordinary schools are open usually on three evenings a week between the hours of 7:30 and 9:30; the centers on four evenings a week for about two and a half hours an evening. The total number of evening schools is 274. Students pay a fee of one shilling a session in the ordinary schools; two shillings six pence in the commercial centers; and five shillings a session in the science and art schools.

PART TIME SCHOOLS.

The evening and Saturday afternoon schools are, of course, the most important industrial schools of England. The English apprentice usually works 54 hours a week, and is supposed to be free during the remaining time to carry on school work. Still he finds it difficult to meet the demands of both his school and shop, and the tendency of the present day is very strong for part-time work for apprentices and other

persons who are unable to give up full time to the schools. The part-time school is, of course, only a modification of the evening classes, differing only in this respect;—that the training is given in the day time or in the early evening instead of the late evening; employers allowing their young work people time off without deduction of pay during a portion of the day to attend classes which will improve their work. Many employers are beginning to do this, some permitting their apprentices to attend classes in the morning. The feeling is becoming quite general in England that it is expecting too much of a boy to require him to work nine or ten hours during the day and get his school training at night. In this they are following, at a distance, the lead of the German continuation school.

TECHNICAL DAY SCHOOLS.

Technical day schools include: (a) trade preparatory schools intended to cover the period between leaving the elementary school and the age of apprenticeship (16); and (b) trade schools proper which attempt to replace apprenticeship. The number of the trade schools for boys, however, is limited to a few groups of boys' trades such as silversmithing, tailoring, cooking and bakery. The membership in some of these boys' trade schools is confined to sons of the masters, and they may be neglected in any general description of the scheme of vocational education. The women's trade schools which attempt to prepare girls for work as "improvers" teach the following trades: dressmaking, retail and wholesale ladies' tailoring, waistcoat making, millinery, corset making, upholstery, laundry work, cooking, embroidering, and photography. The girls' trade schools, which attempt to replace apprenticeship, seem to be very popular. Their courses are short (two years), and appear to me to be lacking in cultural and artistic elements. Statements have been made by persons connected with these schools that the girls receive enough training to enable them to get other women's positions by underbidding them, but not training enough to prevent their being overtaken by the same fate later on. Many competent critics believe that girls would be better served by good artistic training in the schools and practical training in the master's shop.

The trade preparatory school, however, has no thought of serving as a substitute for apprenticeship, but aims to prepare for apprenticeship or for further instruction in the technical institutions. They undertake to give instruction in the principles common to a group of handicrafts, giving that power of adaptation which may be needed on account

of changes in the industrial conditions and methods of production. Many believe that ignorance of these fundamental principles is an important factor in increasing the number of unemployed when changes in the industries occur. The training of the engineer may lead to the making of guns and motors; the well trained carpenter can easily learn to make cabinets, ladders, picture-frames, and cricket bats; in the work of the carpenter and fitter the foundation is broad enough to lead into the profession of the architect and engineer. The work in all these schools should result in the recognition of the dignity of labor, and the perception that the work of a skilled artisan is as worthy as that of a clerk and much more stimulating to the intellect.

The curriculum of the trade preparatory schools is usually three years in length; the pupils being permitted to leave the elementary school and enter the trade preparatory school at about thirteen. The studies and time given to them differ in different cases, and has been stated by Mr. Blair as about eight hours a week in English, eight or ten hours in mathematics and science, eight or ten hours in drawing and manual work during the first year. In some schools, however, fully half the time is given to drawing and manual work. During the first and second years the curriculum is more general and is suitable as a general preparation for a number of trades. In later years, the pupils are permitted to specialize according to their particular career.

The classes are usually held in buildings of technical schools, whose main purpose is evening work. There is a decided advantage of this bringing together of the day and evening work, as it will lead, in some cases, to the pupils shifting to day work for full time in place of a few hours of evening work; and in other cases will lead a boy who has been compelled to leave the day classes to continue work in the evening after entering upon a trade. This correlation between day and evening classes is very important, especially now when the number in the day classes is very small. According to the census of 1909-1910, there were only 700 boys in the day classes of technical schools and 620 girls. The boys and girls in these schools are required to pay tuition, but the statistics of the year I have just quoted show that only 224 boys and 195 girls paid tuition fees.

Mr. Blair enumerates ten day technical schools for boys, eight maintained by the County Council and two aided by it; and four day trade schools for girls maintained by the Council and two aided by it. The courses in these schools vary slightly in the proportionate amount of workshop instruction to academic subjects. A somewhat detailed sketch

of the work done in the school of building at Brixton will, perhaps, be the best means of presenting a picture of the work of this group of industrial schools.

SCHOOL OF BUILDING AT BRIXTON.

The prospectus of this school states that "a day school for boys has been established at this institution with the object of providing a sound scientific and technical training for boys preparing to enter the building trades and allied vocations." It is not suggested that this training should replace the apprenticeship system, but the institution should give instruction which it is almost impossible for the boy to get anywhere else. The whole of the training is preliminary, and should be continued in evening schools in the Council's institutes or polytechnics, after the pupil enters upon his life work.

The course is for three years, and is confined to boys between thirteen and fifteen who have passed the sixth standard of the elementary school, or its equivalent. The curriculum which is common to all students during the first years, includes:

- 8 hours per week workshop practice;
- 6 hours per week technical and drawing office instruction;
- 4 hours per week elementary science;
- 10 hours per week English, mathematics, and art applied to building;
- 2 hours per week physical instruction.

At the end of the first year the principal advises the parents of the boy attending the school as to the most suitable trade to select for their boy; this recommendation is based upon any special aptitude shown during the first year, upon reports from the master, the character of the boy, and the position of the parents.

In the second and third years the courses are divided into two main sections: (a) the artisan course for bricklayers, carpenters, masons, plumbers, painters, etc.; (b) the higher course for architects, builders, and surveyors. During these two years the instruction in building construction for all students is of a more advanced character, and the general elementary science with referenc^e to building materials and mechanics of building is more directly applied. Students taking the artisan course specialize in the trade which they intend to follow. The pupils in the higher course receive weekly instruction in the various trades in rotation; builders' quantities, architectural drawing and land surveying are added to the curriculum.

In the second year:

- 6 hours per week is given to technical and drawing office work;
- 10 hours per week are devoted to the specialized instruction;
- 4 hours per week to elementary science;
- 8 hours per week to English, mathematics, and art applied to building;
- 2 hours per week to physical instruction.

In the third year:

- 15 hours per week are devoted to the specialized instruction;
- 5 hours per week to technical and drawing office work;
- 4 hours per week to science;
- 4 hours per week to English, mathematics, and art applied to building;
- 2 hours per week to physical instruction.

Towards the end of the third year, as opportunities arise, the boys are placed. The principal is of opinion that it is undesirable to insist upon the completion of the three years, as it would be extremely difficult to place, or assist in placing, groups of fifty boys leaving simultaneously.

Workshops are provided and equipped for the practical teaching of several building trades under conditions similar to those met with in the builders' shops. The school of architecture gives instruction in the history of buildings, and for the study of architectural design and planning, together with the preparation of architectural drawings. Lecture, classrooms, drawing offices and laboratories have been arranged in connection with the workshop, so that the practical work of the school may be combined with class study in building construction, drawing, architecture, and the chemistry and physics of materials. Every facility is given for fullsize work, and various trades act in conjunction for this purpose. A portion of the large hall of the school is devoted to this work. Great importance is attached to the practical combination of the studies in the several trades and branches as required by a master-builder, foreman, or architect; and an architectural director of the school has been appointed for this purpose. Facilities are, therefore, given for combining architectural studies in drawing and theoretical work in the workshop, lecture room, and drawing office. Courses of special lectures, open to all students, are held each season upon architectural and scientific subjects in connection with the work of the schools.

EVENING CLASSES.

In the practical trade schools of this institution, admission is given only to those engaged in the trades. These classes are intended to supplement workshop classes, and not to teach trades. Students in these classes are expected to attend the lectures and drawing office work in connection therewith, and those who fail to do so are not allowed to continue the workshop practice. Classes are held in the evening, two or three times a week, from 7:30 to 9:30. The work of the school is divided into three departments, as follows: First, *trade classes*, including brick work, carpentry and joinery, staircasing and hand railings, masonry, pipe work, sanitary engineering, stone carving, wood carving, modeling, wrought iron work. Second, *building instruction in allied subjects*; builders' bookkeeping, estimating, office routine, construction, mechanics of building, constructional steel work, building or quantity surveying, chemistry and physics of building materials, geometry, land surveying and valuation, workshop arithmetic, practical mechanics. Third, *architecture and drawing*; architectural design, working details and perspective drawing, architectural history, freehand and model drawing, lettering and inscriptions for drawings, sketching and measuring buildings and details. These courses are held at the Victoria and Albert Museums at South Kensington.

Other vocational schools for boys follow the same general plan as the Builders' school. Some do more shopwork; some less; some pay more attention to the industrial arts; some less. Altogether they are a mere handful compared to the masses attending the evening classes (126,000) and the larger masses getting no vocational instruction. All of them try to use the period from about twelve to sixteen years for the pre-apprentice training.

VOCATIONAL AND GENERAL EDUCATION.

For the young man who can work all day and study nights, England makes ample provision. What strikes the observer who has seen the day work provided in Germany is the excessive demand made by the English system upon the physical endurance and will power of the rising generation. My observation leads me to believe that the demand is too great, and is sapping the vitality of the English youth.

In my opinion the Germans are wiser in preserving the elementary school up to fourteen, the beginning of adolescence, for general culture, including *hand training*, and then compelling supplementary vocational

training in the day time up to the age of eighteen for those obliged to go to work. I believe no boy should be compelled or permitted to choose his vocation before the age of fourteen, and further, that no one can do it for him intelligently before that time. I believe the boy's general welfare demands no shortening of the period of infancy or childhood, no premature entering into the ranks of the breadwinners. Let vocational training wait until childhood ripens and youth begins.

IF WE WILL HONESTLY TAKE INTO OUR HIGH SCHOOLS, AS WE HAVE TAKEN INTO OUR UNIVERSITIES, ALL THE MAJOR ACTIVITIES OF OUR MODERN LIFE, SPLITTING NO HAIRS AS BETWEEN THE INDUSTRIAL AND THE PROFESSIONAL, FOR NO MAN CAN DEFINE THE DIFFERENCE, SO IMPERCEPTIBLY DO THEY SHADE THE ONE INTO THE OTHER—IF WE WILL TAKE THEM ALL INTO THE HIGH SCHOOL AS WE HAVE ALREADY TAKEN THEM INTO THE UNIVERSITIES, AND CARRY THEM ALONG TOGETHER, THE VOCATIONAL AND THE NON-VOCATIONAL, SIDE BY SIDE, DAY AFTER DAY, FROM FIRST TO LAST, SO THE BOY IS NEVER FREE FROM EITHER, THEN WILL OUR EDUCATIONAL NECESSITIES BE MET AND ~~WE~~ SHALL HAVE GAINED A GOODLY NUMBER OF SUBSTANTIAL ACHIEVEMENTS.

IN THUS AMALGAMATING THE VOCATIONAL AND NON-VOCATIONAL, I WOULD LIKE TO SAY A WORD FOR WHAT MIGHT BE CALLED THE PARALLEL SYSTEM AS DISTINCT FROM THE STRATIFIED. THAT IS, I WOULD HAVE A BOY, FROM HIS FIRST DAY IN THE HIGH SCHOOL TO HIS LAST, HAVE TO DO WITH BOTH THE VOCATIONAL AND THE NON-VOCATIONAL. I WOULD HAVE HIM EVERY DAY TAKE STOCK OF THINGS VOCATIONAL IN TERMS OF WORLD VALUES. I WOULD HAVE HIM DEVOTE A FULL FOURTH OF HIS TIME TO WHAT WILL BRING HIM EARNING POWER, TO BE USED FOR THAT PURPOSE IF HE NEEDS IT AND TO GIVE HIM AN INDEPENDENT SPIRIT IF HE DOES NOT NEED IT. EVERY MAN IS A BETTER MAN IF HE FEELS THE POWER TO EARN HIS WAY, WHETHER HE NEEDS TO DO IT OR NOT.—Eugene Dayenport, Dean of the Agricultural College, University of Illinois.

FORESTRY IN AGRICULTURE.

EDWIN R. JACKSON.

THE educational systems and theories of a nation are a reflection of the times. Whatever the people need is ultimately taught in the schools to their children. The response of the schools to these needs may be slow, but it is sure. The Greeks were interested in athletics; they taught their children to be athletes. The Romans were a warlike people; their schools were chiefly schools for military instruction. Mediaeval scholars studied Latin because they needed Latin; the instruction was limited to a small class because the great body of the people got along very well without knowing how to read Latin. The modern movement toward industrial training is a result of the demands of the times.

Education in agriculture is comparatively a new thing. In fact, the science of agriculture is still in its infancy. Man has been a tiller of the soil since the days of Adam, yet he has but lately begun to learn why he need till the soil to make his crops grow. George Washington was a progressive farmer in his day, yet he never knew what plowing does for the soil; or why milk sours; or why wheat rusts; he never heard of crop rotation, or balanced rations, or commercial fertilizers. Washington could not have read understandingly an elementary text book in agriculture such as is today placed in the hands of high school boys.

The century since Washington has been one of wonderful progress, not only as to educational matters but as to methods of farming as well. Agriculture has become more and more the basis of the nation's wealth and influence; yet agriculture has had a hard time trying to make for itself a place in our public school curriculum. The first agricultural school established in the United States—the Gardiner Lyceum, founded at Gardiner, Maine, in 1821—was forced in ten years, for want of patronage, to discontinue as an agricultural school and open as an academy. The people were not yet ready for agricultural schools.

One reason why agriculture has been rather shied at by professional educators is, perhaps, that it may be regarded as more of a business, or practice, than a science. For this reason, until the modern idea of industrial training won recognition, agriculture has been left to the tech-

nical schools almost entirely, and so far as the bulk of the farming population is concerned, the training received has been handed down from father to son without systematic effort to improve or widen its scope. Yet we have now come to realize that besides a mere industry, or business, farming is a science as well.



FIG. 1. COUNTY AGRICULTURAL HIGH SCHOOL AT SPARKS, BALTIMORE COUNTY, MARYLAND, IN WHICH A COURSE IN WOODLOT FORESTRY WAS OFFERED TO THE CLASS IN FARM CROPS. THE WAGONS SHOWN ARE USED TO HAUL THE PUPILS TO AND FROM SCHOOL.

Another difficulty has been found in the tendency of the students of the professional and literary schools to look down upon students of agriculture socially. To overcome this tendency, the agricultural colleges have constantly raised their entrance requirements, in the attempt to give themselves a standing equal to that of the universities. Consequently, they have ceased to give service to the large class of young people who become the practical farmers or who are the prospective teachers of agriculture in rural schools, so that the means afforded for training teachers to conduct classes in agriculture in the common schools have thus far been very inadequate.

Then, too, the course offered in the public schools is already very full. There seems to be no time for a new subject. Even in farming

communities, the introduction of agriculture into the school work almost invariably meets with opposition on the part of the school's patrons, who still insist that they can teach their children all the agriculture they need at home, while the school should confine its work to the "essentials," meaning the ordinary text-book subjects, especially the three "R's."

GROWTH OF SENTIMENT.

But all this is slowly changing. In spite of all obstacles and objections, agriculture is slowly but surely winning its way into the public schools of our rural communities, because it is the one particular subject which the country boys need more than anything else if they are to be encouraged to stay on the farms. Everywhere, over the face of this great farming country, there are springing up agricultural high schools whose whole purpose is to adapt education to the life of the rural communities. Even where such separate schools do not exist, agriculture is being taught in the high schools and in the elementary and grade schools as a part of nature study and in correlation with other subjects.

When one pauses to consider what might be studied by a student in these agricultural high schools, such subjects as soils, fertilizers, crops and crop culture, or live stock breeding and management, at once present themselves to the mind. Where in this list is there a place for forestry? Or is there any such place? It would seem that if forestry had any place in elementary agriculture, writers of text-books on the subject ought to give it consideration. But an examination of the current texts on elementary agriculture will reveal the fact that only a very few authors have anything to say about forestry, and of these few, the majority mention it only in its general aspect and but a very small minority of the writers treat the subject in its application to the farm woodlot. It would seem, therefore, that text-book writers on agriculture generally do not consider the subject of sufficient importance to justify any especial attention. But the trouble has been that they have thought of forestry as a technical subject of interest only to the lumbermen and professional forester. They have overlooked, just as the farmer, himself, has overlooked, the real importance of forestry to the farm in its application to the farm woodlot.

True, there are certain features included by the subject of forestry which should be taught to every public school pupil for their informational value, because they are things with which every well-informed citizen should be familiar—such, for example, as the questions, recently

made prominent, as to the necessity for forest conservation and the influence of forests on soils and stream-flow. But these principles belong not so much to agriculture as to geography. On the other hand, the student of agriculture needs to have it brought home to him that the woodlot is a part of the farm he can no more afford to neglect than he



FIG. 2. HIGH SCHOOL STUDENTS LEARNING HOW TO MEASURE
STANDING TIMBER.

can his cornfield; that in the study of forestry he will find not only how to use advantageously the resources of the woodlot, but also how to manage the crop of the woodlot so as to make it yield a greater profit.

How may this be done? Where is the teacher of agriculture to get the information necessary to give such a course? And what should the course include? All these are questions for which apparently, no suf-

ficient answer has yet been found. Few, if any, of the text-books now available give sufficient attention to the subject to make them satisfactory for such a course; neither is there at present, among the publications of the Government or the various state organizations, any which could be used, except partially, as texts. However, the Forest Service now has in course of preparation a bulletin designed to fill this need. This bulletin will be based upon experiences derived from a one-month's course in elementary forestry given last spring in the Baltimore County Agri-



FIG. 3. BOYS IN THE FORESTRY CLASS OF THE BALTIMORE COUNTY AGRICULTURAL HIGH SCHOOL, LEARNING HOW TO ESTIMATE THE CONTENTS AND VALUE OF STANDING TREES.

cultural High School, at Sparks, Maryland, and in the conduct of which course the Forest Service cooperated with the efficient principal, B. H. Crocheron. An outline of this course is here given in order to indicate what it seems such a school might teach and what every writer of an elementary text-book on agriculture might reasonably include in his book on the subject of forestry.

SUGGESTED COURSE IN FORESTRY.

The work in forestry, as given, formed a part of the course on farm crops. This statement alone presents a new conception, quite distinct

from the treatment of the subject commonly accepted, and suggests the purpose of the course—i. e., to emphasize the importance of trees as a farm crop. Recitations were conducted daily, the lessons being based on bulletins and manuscripts provided by the Forest Service and the State Forester of Maryland, with Roth's *First Book of Forestry* as a reference book. Field trips were made to a nearby woodlot, whose owner very kindly allowed the school the privilege of using it for study purposes, where measurements and field studies were made; and the pupils in-



FIG. 4. WINDBREAK OF TREES PROTECTING FARM BUILDINGS.

vestigated and reported on forest and woodlot conditions in the vicinity. Briefly, the exercise covered the following ground:

There was given, first of all, an introductory course on the principles of general forestry, including the life history of the tree, with studies of its structure, nutrition, and growth; influences which affect tree growth, such as temperature, moisture, soils, light, and other minor conditions such as the age of the tree, its reproductive power, and the nature of the season. This was followed by a lesson on the silvical qualities of the principal tree species found in the vicinity, so as to give the pupils an idea as to their relative importance and desirability. The next step was a study of the forest, as distinguished from the tree. The forest was considered as a tree society and the struggle for existence, with its effect upon the shape, growth, and development of the tree, was discussed. The introductory course closed with a brief study of the influences of forests on climate, water-supply and streamflow, and soils;

and a lesson on the enemies of the forest, and forest destruction as wrought by fire, bad lumbering, and by other agencies.

This part of the course was intended merely to give the pupils a conception of the principles governing tree growth, the broad scope of forestry and the general importance of forestry to the nation at large. The second part included what is really the essence of the course, namely, a consideration of the woodlot, its importance to the farm and its management and utilization.

THE FARM WOODLOT.

The first topic taken up in the study of the woodlot was the relation of the woodlot to the farm. Under this head were discussed the origin, extent, and condition of woodlots in the United States; and the importance of the woodlot to the farmer as a source of material, as a means of utilizing waste lands profitably, and of affording shelter to the farmstead. Trees were then considered as a farm crop and comparisons made with ordinary crops as to the labor required in caring for them; their requirements for soil and moisture; danger of failure of the crop; and possible profits resulting from the harvest.

Two lessons were devoted to methods of measuring the crop of the woodlot—both as standing timber and in logs. The pupils were given actual practice in this part of the work by means of field trips. Three lessons were given to studies of woodlot management; how and when to make cuttings; what trees to remove and what to leave. Various systems by which growing conditions can be improved at the same time that the crop is being harvested were discussed, and the students laid off a sample plot and marked it for cutting according to the principles they had learned.

One lesson was devoted to the consideration of how the crop of the woodlot could be marketed advantageously; another considered briefly the question of tree planting on the farm. Another was devoted to the protection of the woodlot from fire, grazing, and other injuries. The studies closed with a general summing up of the lessons learned during the course and reports of original investigations made by the students as to lumber values; cost of cutting, hauling, and sawing timber; stumpage and cordwood prices; and other features of the lumber market in the vicinity.

Perhaps the most important, as well as the most difficult, part of the undertaking was the field trips, and these should have further mention.

On the first trip, the boys were taken to the top of a high hill where they could get a good bird's-eye view of the surrounding country, and asked to estimate the proportion of land in the vicinity that was covered with timber, and to suggest why this land had been left in trees. Then they were taken to the woodlot which was to be the field of operation and studied it with respect to the following features: species most abundant; age, density, and condition of the stand; reproduction or lack of



FIG. 5. WASTE LAND ON THE FARM MADE PROFITABLE BY TREE PLANTING. FOUR-YEAR-OLD LOCUST PLANTATION IN A CORNER CUT OFF BY INTERSECTION OF RAILROAD AND HIGHWAY.

it; protection given the tract; and types of the standing trees, whether merchantable or not.

The second and third field trips were devoted to learning how to measure the stand in order to estimate the value both of standing trees and felled logs. A sample plot was laid off and the contents of its trees estimated both in board feet and in cubic feet, the students using the standard log rules for this purpose and making their individual computations independently. The object of these exercises was to enable the students to learn to judge for themselves the value of timber, especially on the stump.

The fourth field trip was given over to methods of making improvement thinnings, and the students went over their sample plot and marked such trees as they thought ought to be removed in order that the con-

dition of the woodlot might be improved and at the same time, profit for the owner derived from the trees cut.

Of course, all this was merely experimental. There were no previous experiences to guide those in charge of the work, and much of the information had to be collected and prepared for the pupils in manuscript form. Consequently, the work was possibly a little aimless at some points and somewhat poorly organized, but in the main, it was undoubtedly a success. The pupils were awakened to a new conception of the forest in its relation to the farm, and also learned, in a rough way, how to properly measure and appraise the crop of the wood-lot—a thing which few farmers know how to do. Every well-informed farmer knows pretty closely how much his cattle, his hogs, his corn and cotton are worth, but few farmers, even the most intelligent and progressive, know how much their trees are worth or even how to find their value. This, perhaps, is one reason why the woodlot and its opportunities are so sadly neglected, and, correspondingly, a reason why forestry should be included in a course in elementary agriculture.

MY NOTION OF A COUNTRY SCHOOL IS A VINE-COVERED COTTAGE IN THE MIDDLE OF A GARDEN, WITH FRUIT AND FLOWERS AND VEGETABLES GROWING ALL ABOUT IT. IT SHOULD HAVE A STABLE ATTACHED WITH HORSES, COWS, CHICKENS, A GOOD WELL, PLenty OF HAY AND FODDER, AND A LITTLE REPAIR SHOP CONNECTED WITH THE BARN, WHERE BOYS MIGHT LEARN SOMETHING OF THE TRADES THAT ARE NECESSARY FOR A FARMER TO KNOW. INSIDE THE SCHOOL THERE SHOULD BE, IN ADDITION TO THE ASSEMBLY ROOM, A KITCHEN, DINING-ROOM, AND BED-ROOM, WHERE THE CHILDREN MIGHT LEARN TO COOK THEIR OWN DINNERS, WASH DISHES, SET THE TABLE, AND MAKE THE BEDS AND TAKE CARE OF THE HOME.—Booker T. Washington.

HOW SHALL THE OBLIGATION TO PROVIDE INDUSTRIAL EDUCATION BE MET?

FRANK DUFFY.

BEFORE taking up the answer to this question, I wish to consider briefly the method of imparting industrial education, and by whom it should be controlled; the relationship between the school, the student, and the employer; the relationship of these three to the public; and the obligations and restrictions that should be placed on all three combined.

In the first place, so far as we as members of organized labor see it, we believe that industrial education should come under the control and supervision of our public school system, and should not be in any way connected with private trade schools of any kind. We know of private trade schools where the student is required to pay a tuition fee of from sixty to ninety dollars or more in the belief that he will be turned out in a very short period of time a full-fledged mechanic. We know of these schools, and we do not approve of them.

We know where they turn out, or say they will, a plasterer in three months, a painter in four months, a plumber in five months, a carpenter in six months, and so on with the other trades. These schools, I say, are fakes. And it is against these schools that organized labor fights; and it is this class of schools that organized labor opposes. You cannot turn boys out full-fledged mechanics in that length of time. Yet we are told, sometimes by the public press, that organized labor is opposed to industrial education. Nothing of the kind! So long as it comes under the control and supervision of the public school system we are in favor of it. We look upon ourselves, first of all, as citizens, and entitled to all the rights of American citizens—entitled to pay our taxes, and to have a voice in the public school system. But we have no voice or say whatever in the private trade school system that is in vogue in several cities in the United States.

TRADE SCHOOLS INDEPENDENT OF INDUSTRIAL DISPUTES.

The public should not allow those schools where industrial or technical education is taught to be mixed up in any disputes of any kind between employers and employees. The public should guard the schools. We have trade schools of a privately managed kind, to which the em-

ployers fly in times of industrial troubles, strikes, and lock-outs, in order to get men, young fellows, to man their jobs, in the effort to show to the public and to the party for whom they are doing the work that their shops are manned and that they have enough help to go ahead with the work, when, as a matter of fact, the jobs are crippled. And when the trouble is settled—for all troubles have got to come to an end—then the employers let those men go first, and they are then out of a job and on the streets. They have only a smattering of the trade; they are botches whom no good employer will hire. Do I, as a workman, as the father of a family, as a member of organized labor, as a citizen of the United States, as one who is interested in the welfare and building up of the community, wish to see such men as these all over the land from one end of the country to the other? I do not!

If we can have industrial education in the public schools, and as a part of the system, we should feel better satisfied. I believe, too, that we would have then a better understanding between employers and employes, for certain restrictions could be thrown around the public school system in the interests of all concerned. For instance, in schools where industrial education is established, the management should refuse to allow the students to leave the school to take part in any industrial disputes between employer and employes under any circumstances or under any promise of remuneration. If students did thus go at any time, then they should be expelled from the school and debarred from finishing their courses. I may be radical in this view; but it will help if we can get down to some common basis of understanding.

I have spoken of the school and its management, the students, and the employers. You may ask me, "What should organized labor do?" Labor organizations should give students credit on their term of apprenticeship for the time they serve in the school studying their chosen trade. I wish I might elaborate on this point a little more, for I believe that if we can come to some such understanding one great trouble between capital and labor would be solved. We would be better friends; we would understand one another better; we would have confidence in one another; and instead of fighting, as we have in the past, we would be shaking hands. Think it over.

WHO REAPS THE BENEFIT OF INDUSTRIAL TRAINING?

And now we come to the question before us. No doubt the public thinks that it is the student who reaps the benefit chiefly. Certainly

he does—it puts him in a better position to make a good living. But he does not receive all the benefit; the employer, too, gets some of it. I do not know whether the employer has thought this out or not; but the employer can remember this, that he will have an A No. 1 mechanic whom he can depend upon and from whom he will get more and better work, and that he will be able to guarantee satisfaction, and the completion of the work in a workmanlike manner, to the owner who gives him the job. The employer will know also that his reputation for good work is being upheld, and he will be advertized accordingly. The student gets the benefit, and the employer gets the benefit.

The student who gets his industrial training here in Cincinnati and becomes an A No. 1 mechanic, which is what we are all looking for, by his turning out good work becomes a source of satisfaction to his employer, to the foreman over him or the superintendent on the job, to the architect, and to the owner. He gives satisfaction to everybody who is interested in his particular line of work. If this is so, then he must be of some value to the community, and all good employers are looking for him and for his services.

By and by he finds out, perhaps, that he can get a better wage in Dayton or Columbus than in Cincinnati. So away he goes to Dayton or Columbus, or any one of a number of cities; and no matter where he goes he gives the same satisfaction that he gave here in Cincinnati. He carries with him his education, his training, his ability, and all the expertness that he has, and he puts it into operation no matter where he may go. He therefore becomes of value to the state, and is an asset to the state. The training and the ability that he got in Cincinnati becomes of value not only to the community, the city, and the state, where he is employed, but to the entire country, for he may carry it with him anywhere; and so he is an asset of the nation as well as of the state. Such a man should be well taken care of.

Now, in summing up, what do we find? The student is benefited, the employer is benefited, the community is benefited, the state is benefited, the nation is benefited; and then you ask the question: "Who shall pay the freight?" Or, in more polite language, "How shall the obligation to provide industrial education be met?" There is but one answer. If the community, the state, the nation, all parts of this great Republic are benefited just as well as the employer and the student, then the great American public ought to pay the bills.

EDITORIAL

IN an address before the National Conservation Congress last September President Taft pointed out that "between the years 1855 and 1894 the time of human labor required to produce one bushel of corn on an average declined from four hours and thirty-four minutes to forty-one minutes, and the cost of the human labor required to produce this bushel declined from thirty-five and three-fourths cents to ten and one-half cents. Between 1830 and 1896 the time of human labor required for a bushel of wheat was reduced from three hours to ten minutes, while the price of labor required for this purpose declined from seventeen and three-fourths cents to three and one-third cents." Again he said, "In 1899 the calculation made with respect to the reduction in the cost of labor for the production of seven crops of that year over the old time manner of production in the fifties and sixties shows it to have been \$681,000,000.00 for one year."

What has brought all this about? The application of science to agriculture? The extension of the railways? Yes, in part, but chiefly the invention and development of farm machinery. Up to 1833 "the plow and harrow were almost the only tools not driven by human muscle. The wooden plow with an iron share was still in use, tho sometimes the wooden moldboard was protected by strips of iron."¹ "There had been practically no change for 4,000 years." "Small grain was still sown broadcast, and reaped with a cradle or the still more primitive sickle." "Grain was threshed with a flail or trodden out by horses or oxen, as it had been in ancient Egypt or Babylonia. Hay was mown with a sythe and raked and pitched by hand. Corn was planted and covered by hand and cultivated with a hoe."

Evolution of Farm Machinery "In 1831 William Manning of New Jersey was granted a patent for a mowing machine." We well remember the old Manning mowing machine on grandfather's farm. "In 1833 and 1834 Obed Hussey of Baltimore and Cyrus McCormick were each granted patents for reaping machines." A few years later came the "thresher" and the "separator" run by horse power; a steam thresher had been used before 1864. "John Deere made his first steel plow from an old saw blade in 1837." The first thoroly practical corn planter

¹ Quotations are from "Principles of Rural Economics" by Carver.

was invented by R. H. Avery while in Libby Prison. Later came the "twine binder" and the "check rower." Sharp competition between inventors has continued for forty years or more and the end is not yet in sight. Just as horse power took the place of man power, so the gasoline engine is relieving the faithful horse, and more machinery is needed. Now the "tractor" is bearing the heavy burdens and the automobile is coming to be used by the farmer for road travel. Moreover, the modern farmer often lives in a house with the latest conveniences; he has barns and stables of the best design; he pumps his ample supply of water with a windmill or small engine; he lights his house with gas or electricity from his own plant; and he talks with his customer in the city over the long distance telephone. And it seems certain that what a few farmers now enjoy will be regarded as necessities in the near future.

The Farmer Must be A Mechanic All this points conclusively to the fact that the mechanic arts are to play a far greater part in the life of the farmer in the future than they have in the past. If this is so then the future farmer must be more of a mechanic than the farmer of the past has been, or he will not be fully the master of his chaff. Along with the study of soils and seeds and animals he must study metalworking, woodworking, cement construction, engines, and electricity—along with science he must study the manual arts.

Vocational Courses For Farmers If then the farmer is to be a mechanic also, the place of the manual arts in the education of the farmer becomes evident. Town and county high schools must be equipped to provide educational courses in the manual arts. These may be divided into two groups, namely, (a) the building group, and (b), the machinery group. In the former there should be courses in house carpentry, cement construction and architectural drawing, and perhaps a little plumbing and piping. The latter should include forging, a little machine tool work, the repairing of farm machinery, the study of gasoline engineering, electricity, and machine drawing. These subjects along with the scientific study of agriculture, and practical mathematics, political and industrial history, and the English language and selected literature would make a course peculiarly adapted to the needs of the young farmer. It would be far more vocational than are most town high school courses at the present time, and if we may believe the statements of the German statesman-educator, Dr. Georg Kerschensteiner of Munich, it would be no less cultural.

—CHARLES A. BENNETT.

Vocational Direction and Guidance Vocational training proposes to explore the capacities of boys and girls, to assist in shaping their careers, and to fit them more definitely to take their places in the various trades and industries. Somehow this proposition looms up rather large. How much authentic information have we of the careers that are open, the opportunities in each, their advantages and disadvantages, the sort of preparation required for entrance, and the extent and quality of the available preparation for a progressive career when once landed in the vocation?

May we not ask ourselves whether vocational training will fully succeed in meeting its own expectations when it has so few official figures of actual industrial conditions. It has not been difficult for the public schools to meet the general requirements of life or to give a general preparation which "fitted one to take any position in life;" but nowadays we talk about fitting for vocational life. What are its requirements? Is skill needed at the loom, or is it mere dexterity of finger movements? Does the boy that throws a lever all day long and attends a cheap show every night fail of expressing ambition because of absence of "industrial intelligence," or does he need a higher outlook on life's possibilities? Shall the trade school train machine operatives for shirtwaist factories if the wage is hardly a living one? Will the public school ever train manicures to work in the average hotel barber shop? Is the boy that plays truant always the boy that needs to learn a trade? Is the boy that fails in other school subjects the only type of lad to advise to go to a vocational school?

A thousand questions might be asked. We have had "child study" in pedagogical institutions but it has dealt with such deep problems as what percentage of ten-year-olds can count backwards from 100 in 82 seconds; or the result of giving an algebraic problem to a boy balanced horizontally on a wooden wedge in such a way that the experimenter could tell whether the endeavor to solve the problem made his head or his feet come down.

The study of children and of the needs of industry is a serious business. We have little available data. The fond parent would have John be an electrical engineer because Johnnie likes to play with a toy electric train. Neither knows that electrical engineering is a question largely of mathematics. The eighth grade teacher would have her bright boy who recites glibly go to college and study to be a lawyer, but law requires something more than glib talk. It is said, if Henry is good at

woodwork he ought to be a carpenter, or if Henry is poor at books he had better be a bricklayer.

While it is true that the time has passed for the let-alone policy of fitting people for vocations, there immediately come up the tremendous questions, whom shall we fit? for what shall we fit? and how shall we fit? Vocational guidance and vocational schools are intimately related. We need not only vocational schools but also information as to the conditions of employment, the wages, the future prospects and various occupations, as well as a knowledge of the educational opportunities and requirements for efficiency in the occupations. It is quite clear that provision for adequate training, for systematic counseling, and for definite knowledge of requirements of trade and industry go hand in hand. An organized plan is needed for advising young people as to the continuance of their schooling and the choosing of their life work.

The city of Munich issues a series of little handbooks, now over a hundred in number, which fully analyze the possibilities of the various vocations. If our boys knew more about the years of patient waiting, or waiting for patients, or the average income of a New York City doctor, perhaps the profession would not be so overcrowded. If the public knew that the mason, altho he may receive eight dollars a day, works only on an average of 176 days a year, possibly there would be more fairness of statement regarding the wages paid this mechanic. If parents knew that men in brass foundries often have pulmonary troubles they would hesitate to apprentice weak-lunged boys to the industry. If a boy really knew that low wages at the start may mean high wages at the end, he would not be so anxious to get at the automatic machine which, thru piecework, pays him not to learn something himself but to earn much more for the company. Possibly there would be fewer children going into the blind alley of industries if they knew it had no opening at the other end.

For several years the Students' Aid Committee of the High School Teacher's Association, the chairman of which is E. W. Weaver of the Boys' High School, Brooklyn, has done valuable work in assisting boys to define before leaving school their purposes in life and to consider the occupations best suited to realize them. Vocational petitions have been prepared for the boys and their parents. Nearly twenty leaflets have been published with such titles as "Opportunities for boys in machine-shops," "Choosing a career," "Vocational adjustment of the children of the public schools." A department of vocational guidance for the public schools of New York City has been recommended by the City Superintendent.

**The
Jamestown
Vocational
Bureau**

The board of education of Jamestown, N. Y., has established a Vocation Bureau in charge of the high school principal, the principal of the junior department, the principal's clerk, the director of manual training, the supervisor of drawing, a commercial teacher and one section teacher from each of the four classes appointed by the president of the council. The purpose of this bureau is (1) to furnish information and directions to students preparing for college or other institutions of learning; (2) to assist students who may need such help in securing temporary employment in vacation and out-of-school hours; (3) to assist students not pursuing their education beyond the high school in determining their vocation and, where possible, to assist in preparing therefor; (4) to help students to secure permanent positions, but not to recommend students for permanent positions who would otherwise remain in school; (5) to keep a record of the students who leave school before completing their course and the reasons for their leaving—this with a view of doing what may be done to remove the causes and of getting those who leave into the night school; (6) as far as may be possible, to cooperate with parents in the matter of vocation for students; (7) to ascertain and classify the various vocations best suited to young people with high school training, and to collect such information as will assist them to make their choice; and (8) to cooperate with employers and to invite their assistance—especially in Jamestown—who may need the services of young people with high school training or who may furnish assistance and information necessary to the work of the bureau.

The increasing complexity of our social and economic conditions makes it constantly more difficult for schools to fit in with the life about them. The number of vocations now open to youths of both sexes has greatly increased. We need vocational training but we need as well vocational knowledge based upon careful investigations. Every school principal should know the industries of his locality, the conditions for entrance, and the possibilities for success. The vocational teachers, at least, must have the information. It is a part of their work to search out the opportunities for preparation as well as to provide the preparation.

It is well worth our while not only *to study the serving powers* of children but *to fit them to serve after we have studied* their industrial tastes and capacities.

—ARTHUR D. DEAN.

**What if
Industrial
Education
Does Not
Come?**

A number of forceful speakers and writers have called attention to the fact that the present propaganda for industrial education bears many striking resemblances to that of thirty-five or forty years ago for drawing and manual training. The earlier effort succeeded in introducing the manual arts into many school systems, but only after the determined opposition of superintendents and teachers had been beaten down or overridden by even more determined reformers, backed by a certain measure of popular demand. There have been those impute a degree of insincerity to many school authorities who apparently accepted the new doctrine but who provided for their boys and girls the form without the substance. Dr. L. D. Coffman has pointed out in a recent address that a study of the history of education shows that vital developments in or additions to the curriculum have not been brought about by school people as a class, but rather as the result of outside influences. It is a fair question to ask, If industrial education is not to be allowed the place and recognition demanded for it, what do its opponents offer as an alternative that will satisfy the thousands who can not use what the schools now give them?

**The Needs of
The Many
Must Receive
Attention**

If educators, so-called, are to continue to block the progress of the people, and persist in withholding what we profess to offer to all, equality of opportunity for education and self-realization, they will soon be on the defensive. A new generation is taking the place of the one that strove so hard to obtain for its children the benefits of drawing and manual training, and it is safe to assume that it will profit by some of the experiences of its predecessor. Education must keep pace with the development of other social institutions, and there are many signs to indicate that the day of the common people is not far distant. The time will soon be upon us when those in high positions will respond with alacrity to the "needs of the many," not so much, perhaps, at first because they are "needs" and are entitled to respectful attention, but because, there are so "many."

WILLIAM T. BAWDEN.

OF CURRENT INTEREST

THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF AGRICULTURAL TEACHING.

REPORT OF THE SECOND MEETING.

The Association met at the Great Southern Hotel, Columbus, Ohio, November 14th. The purpose of this organization is to develop plans for the advancement of agricultural teaching in public and special schools; also to report the quality of agricultural teaching in higher institutions. At the present time the organization is composed of the heads of departments of agricultural education in agricultural colleges which have established such departments; also, teachers of agriculture in all institutions, and state supervisors of agriculture as found in New York and Ohio. Twenty states were represented at the meeting.

The Secretary presented reports from every state in the Union as to the present status of agricultural teaching. Professor J. H. Miller of Kansas, stated that this report showed a marvelous movement, and that the greatest advancement in agricultural education had been made during the past five years. In other words, he showed that more advancement had taken place in the past five years than in all previous history.

Professor Barto of the University of Illinois presented a paper on "The Proper Equipment for Teaching Agriculture in Secondary Schools." Mr. Barto argued that a small amount of land is essential, and that only fundamental material and apparatus is necessary. Because of the small expense connected with the necessary agricultural equipment, the public high school affords a large field for instruction in the elements of agriculture. Both Mr. Barto and Mr. Crosby maintained that certain lines of equipment are absolutely essential, and that the school cannot be considered as giving proper instruction if this equipment is not provided.

Superintendent E. C. Higbie, of Morris, Minnesota, presented a paper on "The Need for Scientific Data regarding Rural and Economic Conditions." Mr. Higbie showed that at the present time there is a large amount of discussion and current literature concerning these matters, but very little of the material is reliable, the speakers and writers having no absolute data for their statements. The discussions, therefore, can be valuable only by way of arousing interest.

A. C. Monahan, of Washington, in his paper on "What is Being Done to Prepare Teachers of Secondary Agriculture," showed that agricultural colleges generally are offering special teachers' courses, and that many Normal schools are introducing such courses as will train teachers to give instruction in agriculture in rural schools. This paper will appear in full in the report of the Bureau of Education.

F. W. Howe, of New York, presented "The Essentials of a State System of Agricultural Education." Mr. Howe argued that in the first place government and state aid were essential to the proper development of a system of agricultural education. Second, that there should be a state supervisor with a suitable number

of assistants who could thoroly inspect and direct the instruction given in the public schools. Also, that the courses of study should be prepared by state authority, and be uniform for all schools, except that special emphasis should be placed upon certain agricultural subjects according to locality and environment.

Professor A. V. Storm, of Iowa, in his paper on "The untrained Teacher of Agriculture in Secondary Schools and Colleges," maintained that untrained teachers should not be employed. The weak spot in the instruction given in colleges arises from the fact that instructors have received technical training, but lack professional and pedagogical training, and, therefore, the results of their instruction are often far from ideal. He maintained that the lack of pedagogical training produced ineffective instructors. We have two problems: First, to provide proper training for those who are now in the service; second, to provide proper training for those who are to teach in the future. He suggested that for the first class, special institutes, short courses, and summer schools must be provided; and for the second class, that regular pedagogical instruction must be offered in all of the agricultural colleges, as these institutions must prepare the men who are to take charge of secondary agricultural instruction.

The officers elected for the ensuing year are as follows:

President, K. L. Hatch, Madison, Wisconsin; vice-president, A. B. Graham, Columbus, Ohio; secretary and treasurer, W. H. French, Lansing, Mich. Members of the Executive Committee: A. C. Monahan, Washington, D. C.; F. W. Howe, Albany, N. Y.; B. C. Pittuck, Stillwater, Oklahoma.

—W. H. FRENCH.

THE RURAL SCHOOL PROBLEM IN THE SOUTH.

In the South as well as in the North and East and West the educational leaders are looking the rural school problem square in the face and are presenting the facts as they see them. President Whitfield of the Industrial Institute and College at Columbus, Mississippi, says:

"During my long tenure as superintendent of the schools of my state, I often visited communities where public schools had been maintained annually for more than forty years; more often than otherwise, I found that the buildings in which the educational processes had been carried on during all these years were uncomfortable, unsanitary, and ugly; that the yards and general surroundings were not kept with any regard to health or to beauty. I failed to see in the homes of the people that improvement which, it seems to me, one would expect to find in homes for so long a time situated so near schools. To me, it seemed as if the school had had a blighting effect on the industry of the community; the lands year by year were becoming poorer; the tools were the simplest, and the farm-processes, the most primitive. I found it unfortunately true that the boys of initiative, those especially needed for leadership in their respective communities, left for the towns as soon as they could procure positions.

I came to the conclusion that social standards and civic ideals and general social conduct did not show the improvement that ought to be necessary results of so many years of the influence of public schools. The same general conditions prevailed in the country churches. After several years of experience in the

study of our common schools at first hand, I decided that there was something radically wrong with their work. I had always been told that schooling was a preparation for living; I failed to see how these schools had made for the better life of the neighborhoods in which they were located."

MISSISSIPPI ESTABLISHES AGRICULTURAL HIGH SCHOOLS.

The Legislature at its last session passed a law authorizing the various counties of the state to establish agricultural high schools. The act provides that it shall be the duty of the state superintendent of education, after a careful inspection of the schools, to make a report to the State Board of Education, showing the equipment, number of teachers and financial support. If in the opinion of the members of the State Board, the school has complied with the requirements of the law, the school is listed as a high school under the law and annually receives from the state treasury the sum of fifteen hundred dollars (\$1500.00).

The act authorizes each county to levy a two-mill tax for the maintenance of the school; the course of study is to be outlined by the State Board of Education. The Board has arranged a four-years' course of study, about forty per cent. of which is given to the study of rural industries; the academic subjects as far as possible are to be correlated with the industrial subjects.

To meet the demand for well prepared teachers for these high schools, the State Agricultural and Mechanical College has provided a course of instruction where the boys will not only study the science side of the work, but where the opportunity will be given to put into practice on a model farm the processes which will be needed in the schools.

The Mississippi Industrial Institute and College, the state school for girls, is planning a similar work for girls. A model home is being constructed on its campus; the girls, as a part of the regular college course, are given instruction in chemistry, bacteriology, hygiene, food economics, sanitation, rural economics, and all phases of domestic science; the girls will live in the demonstration home and will use it as a laboratory in fitting themselves for this work in the high schools.

NOT TWO SYSTEMS OF HIGH SCHOOLS, BUT ONE GOOD SYSTEM.

Among some of the leading educators of Mississippi a desire has been expressed that the state should not make the mistake of establishing independent agricultural and industrial high schools under the new law. President Whitfield of Columbus, in a strong address said recently:

"The influences which have operated to make the common schools and the colleges respond in some degree to the demands of educational experts and of the masses of the people for industry as one of the essential elements in general education, have made little impression on the high schools. So tenaciously have our high schools held to their pristine standards and so little heed have they given to these demands for the recognition of the industrial subjects, that the industrial classes all over the country have started propaganda for the establishment of agricultural and other forms of industrial high schools as a separate and distinct type of high schools.

"In almost if not all of the states of the South, schools of this character have been provided for by legislation, and a great many political units have taken advantage of the opportunity thus afforded and have established these schools. To my mind, there are many reasons why we should not have separate industrial high schools.

"In the first place, it means a division of the available resources for high schools. In the South taxable values are low and population is sparse; it is hard to raise sufficient money to properly maintain one system of high schools as they should be maintained. If this policy is continued, it takes no prophet to see that the result will be that we will have no high schools worthy of the name.

"In the second place, if we had both the resources and the students to properly maintain these two systems of high schools, it would be bad policy to have the dual system. I cannot think of any greater force for making a cleavage in society than to have one set of high schools where the students are required to spend a large part of their time in doing manual work, and another set of schools where the students never worked with their hands. The inevitable result would be that those who went to the classical school would think that they should have a monopoly of the professions and should dominate public affairs. On the other hand, the industrial high schools would degenerate into cheap trade schools.

"All of our boys and girls of every class and condition in society who go thru the common schools, should have the opportunity of meeting together at the high school. They would here meet on equal terms, have the same start in life, and by knowing each other better, have more respect for each other. The son of the banker if he desires should have the option and opportunity to become a scientific agriculturist; while the son of the farmer should find an unobstructed path to the banking house if his inclinations lead him in that direction."

CORN CLUBS AND CANNING CLUBS IN THE SOUTH.

Boys' corn clubs and girls' canning clubs are beginning to bring remarkable results in interest in farm life thruout the state of Georgia, according to an article by J. P. Campbell in *School and Home*. Parents are encouraging their boys and girls by giving them the proceeds of their labor on the "demonstration plat," and business men and public-spirited citizens are contributing to the movement by giving premiums. Club contests were held in ninety-six counties in 1911. These represented about 6,000 boys and girls. The boys cultivate an acre of corn each, and the girls one-tenth of an acre of garden vegetables.

In many counties of the state it was expected that boys' corn clubs would force the yield up to seventy-five bushels an acre at a cost not exceeding twenty-five or thirty cents a bushel. In 1910 one county had ten boys who averaged sixty bushels of corn to the acre. Girls have been especially successful in raising and canning tomatoes. It is now proposed to organize boys' pig clubs and girls' poultry clubs.

These clubs are organized in cooperation with the schools, and instructions are sent to the boys and girls by the State College of Agriculture and the United States Department of Agriculture.

The Educational Exchange tells of a corn club boy in Alabama who has just gathered from one acre 224 bushels and three pecks of corn. This was produced at an expense of a little over nineteen cents a bushel. "There were 25,000 separate stalks of corn averaging more than two ears to the stalk. The rows were three and one-half feet apart and the stalks six inches in the drill. The corn has been sent to the Southern Industrial Congress in Washington."

A SUGGESTION FROM NORWAY.

The London *Schoolmaster* tells us of some forestry work in the rural schools of Norway:

"It is interesting to note the excellent work that is being done among schools in the country districts by the institution of planting days and elementary instruction in the theory and practice of afforestation. The Norwegian Forestry Society, which has, since 1890, received an extra grant towards this object, has made arrangements whereby the state provides the plants and gives the necessary training to schoolmasters who wish to interest the children in the movement. On one piece of ground—parish land—near the west coast, 100,000 plants have been put in by the school children in three or four years, and are thriving well. The work is rapidly extending to country schools all over the land. Is there any fault to find with this sort of constructive statesmanship? Are the children not getting real education and rendering real money value service to the community at the same time?"

AGRICULTURAL WORK IN A RURAL SCHOOL.

Two miles west of Chokio, Minnesota is a rural school taught by Fred Grafelman in which the pupils are really interested. In addition to the curriculum as taught in the average rural school, concrete, tangible things are presented at such times and in such a manner as not to interfere with the regular work; in fact, zest and enthusiasm is added thereto. Of the things that are really done by the pupils, the following may be mentioned: measuring with both dry and liquid measures that are of commercial size, thus giving definite ideas of how much a pint, quart, or peck is; studying seed corn, time for gathering, methods of storing, germination tests, etc., in which a seed corn tree, a germination box and a microscope are used; testing with the Babcock tester for butter fat, the milk of the cows living at the homes of the pupils and encouraging them to keep milk and feed records of their respective herds; studying soils and the action of water in different kinds of soils; drawing to scale the garden which each pupil is to plant; encouraging cooperation thru the sale of garden products and the organization of a boys' and girls' agricultural club, which has monthly meetings whether school is in session or not; teaching banking by having children deposit at least a part of the money from sales of garden products or of premiums awarded at the county fair; teaching farm accounts; teaching thru the use of a drawing the names and parts of the different cuts of a hog, a beef and a sheep; encouraging girls in learning to sew and cook as well as to take part in the cereal and vegetable growing by the boys.

This work, started in a small way, has grown in interest and scope and is the means of doing a great deal of good in the district.

HOW THE STATE IS HELPING THE KANSAS FARMER.

We have not yet heard of any law compelling farmers generally to use their land properly, but in many states any farmer who wishes to know how to conserve his land resources may receive instruction at public expense. Moreover, it is often brought to his very door, so that he must accept or refuse it. It is surprising how effectively this is being done. One illustration has come to our attention recently. The Kansas State Agracultural College reaches out in the following ways: (a) It sends out one or more speakers to each of the annual meetings of the 280 farmers institutes in the state; (b) it conducts work on "county" and private farms, proving farming methods, and growing crops for pure seed; (c) it sends out expert orchardists and entomologists to show the value of spraying orchards and gardens, and to show the best methods of caring for them; (d) it sends out trained men to supervise the building of silos and dairy barns, and to instruct personally in the best methods of handling dairy cows; (e) it sends out trained women to hold "movable schools" in cookery and sewing; (f) it sends out an expert highway engineer to advise county and city officials in matters relating to the building of roads and bridges, furnishing plans and specifications; (g) aided by the United States Government, it maintains three experiment stations from which are issued from ten to twenty free bulletins each year dealing with facts of first importance to the farmer; (h) it sends out a professor of rural education to help the teachers of the public schools to teach agriculture, cooking, sewing and manual training; and (i) it offers correspondence courses in twenty subjects at a nominal cost. As a matter of fact the instruction is not really free, for the College costs the people over a quarter million dollars a year and every tax payer contributes. It is, therefore, to his interest to take advantage of the state's offer—to take what he has paid for. This principle has worked wonders, and there are more to follow.

STATE AGRICULTURAL SCHOOL, CROOKSTON, MINNESOTA.

The Northwest School of Agriculture, located at Crookston, Minn., is a part of the State University and is one of the first branch agricultural schools organized as such established in this country. The school is located in the heart of the Red River Valley two miles from Crookston, a city of 9,000 people. It is located on a farm containing 640 acres. This farm was established as a State Experimental Sub-Station in 1895. The sub-station was established to work out farming methods peculiarly adapted to this section of Minnesota, and to assist the farmers to meet the conditions here.

The school was established in 1906, when one building was provided and \$4,000 were appropriated annually for maintainance. The experiment farm superintendent was appointed as head of the school and his faculty included the men who had direct charge of the various farm departments. This policy has been continued and constitutes one of the most positive elements in the efficiency of the school. For example, the dairyman of the farm is in direct charge of

the dairy herd. He and his assistants attend to the management, to the feeding and breeding of these animals. During the school term he teaches the classes in dairy husbandry, has charge of the dairy stock judging, butter and cheese making, milk testing work, dairy records and gives to the students a complete course in practical farm dairying.

The other farm and school departments are combined in the same way. The school has at the present time six substantial school buildings, costing from \$15,000 to \$65,000 each, full equipment, a full set of farm buildings and equipment, including cattle, horses, sheep, hogs and poultry. The annual appropriation for maintenance, exclusive of building funds, is \$30,000 per year, plus fees. In order to provide for a unit of 500 students four additional buildings will be required. All the students board and room at the school in dormitories which are provided for that purpose.

The school term covers three years of six months each. The requirements for admission are the completion of the eighth grade work, although a large number have had from one to four years of high school work. The school has grown from an enrollment the first year of thirty students to a total the last year of 435 students, of which 140 enrolled for the regular work.

With the two other schools of this kind in Minnesota over one thousand young men and women of age from 16 to 22 are brought into contact with life's problems and education and uplifting associations. The number who take advantage of this vocationalized work increases steadily each year. Minnesota is seriously attacking the problem of the education of those who leave the elementary school without planning to go to college and we may expect a smaller per cent. each year of young men and women at the age of eighteen who are not attending some school, than in the past. Undoubtedly this is one of the greatest problems before the country at the present time. Its solution is urgently demanded.

FARM ENGINEERING COURSES.

Farm engineering is a very important department of the State Agricultural School at Crookston, Minn. The farm operates a gasoline tractor. All the boys are trained in the use of various kinds of farm machinery and of gasoline engines, in concrete work, in drainage installation, in carpentry work, in blacksmithing work and in drawing. The boys generally have some farm buildings each year for which they wish to get complete data to use at home. They make sketches and prepare blue-prints and specifications for the buildings desired. The school renders this service to the farmers of this section of the state. The farm engineering department has become, in fact, an experimental and demonstration workshop. Types of machinery are on display so that the students may familiarize themselves with the recent achievements along those lines.

The girls enrolled in the school take some of the subjects in the same classes as the boys. Special emphasis by them, however, is made in work in cooking, sewing, domestic chemistry, domestic hygiene, home economy, home management, household art, laundrying and study of meats. All the students take work in English, civics, hygiene, farm accounts, physical training, music and public speaking. The boys have military drill as a required subject.

The school offers at the present time, in addition to the regular school course, a short course in agricultural technology for high school graduates, six months in length; a farmers' course for adult farmers; a summer training school for teachers; a junior short course for boys and girls, and a women's course in home economics.

The station corps prepare bulletins from time to time covering lines of demonstration and investigation work carried on at the farm. The system of organization and work of an institution of this kind affords a great many contact points between theoretical and actual farm work and problems. This is the strong point of an institution of this nature. The school is, practically, in session the entire year. When there are no regular classes, farmers visit the institution and learn first hand the problems that are being met and the solutions that are offered. Minnesota has two other institutions of this kind. The central school which is located at St. Anthony Park, established in 1888, is the first of its kind in the country. A school similar to one at Crookston was established at Morris, Minnesota, in 1910.

A NEW SCHOOL EXPERIMENT ON THE PACIFIC COAST.

Some three years ago the Tamalpais Union Polytechnic High School was organized to try a new experiment in education in California.

A number of technical high schools and private schools had been organized but none where a full academic, commercial, and polytechnic course had been coordinated. In this school the only work prescribed is English and composition for three years, and spelling and penmanship until a certain proficiency is attained. The remainder of the work is elective except that at least one-half of the total must be in the academic department. This allows a pupil under careful guidance of the principal to develop any line of ability he may possess. As has been said "it allows a boy to find himself," which is one of the most important features of a high school education.

The polytechnic department offers three special lines of work for boys, and some general work for girls. The three lines are architectural, leading toward the construction trades, electrical, and machine work. Each course covers four years, and requires one-half of each school day.

NATIONAL EDUCATION ASSOCIATION.

On the invitation of the officers of the National Conservation Congress whose last convention was held in Kansas City, Mo., September 25, 26, 27, 1911, five delegates were appointed by President Carroll G. Pearse to represent the National Education Association. At that convention the five delegates so appointed united in proposing the following resolutions which were unanimously adopted by the Congress in session, as follows:

Resolved: That the children of the United States are recognized as the most precious resource of this nation, and that the Federal Bureau of Education is the only agency for collecting, publishing and distributing educational information throughout the country. We, therefore, urge that the national appropriations for studying problems involving the welfare of the nation's school children

be made comparable in amount with those annually made for studying problems involving the welfare and conservation of the nation's material resources.

Resolved: That in a system of free schools all the children should be trained for good citizenship and for the useful industries; that owing to the rapidly changing and increasing complex social and economic conditions now going on in all sections of the Union, that our public schools should make ample provision for instructing the youth of the land in the more important occupations in which our people are engaged, and that the parents and teachers should counsel together to determine, if possible, what vocation each child is best adapted to pursue.

Resolved: That the vocational education bill now pending in Congress, providing for the training of teachers to give scientific instruction in the elements of agriculture in the rural schools, has our hearty endorsement, and we urge its speedy enactment.

GEORGE B. COOK, Arkansas,
E. C. BISHOP, Iowa,
E. T. FAIRCHILD, Kansas,
J. M. GREENWOOD, Missouri,
J. L. MCBRIEN, Nebraska.

February 27-29 have been announced as the dates for the meeting of the Department of Superintendence, and other societies meeting at the same time, at Saint Louis, Missouri.

NATIONAL SOCIETY FOR THE PROMOTION OF INDUSTRIAL EDUCATION.

The fifth annual convention of the Society was held in Cincinnati, Ohio, on November 2d, 3d, and 4th. At the Thursday afternoon session President Dabney, of the University of Cincinnati, and Dean Herman Schneider, of the College of Engineering, spoke on Cincinnati's contribution to the development of industrial education. Principal Pliny A. Johnston, of the Woodward high school, in discussing vocational plans in the high school called attention to the bad influence on the boy of the three or four hours that intervene daily between the close of school and the time that father arrives home from work. Further, he said in part:

"The public is going to require more of the high schools than it is getting, and presently it will get it; and that something that is being sought will be found in the vocational high school.

"The classical high school is a government 4 per cent. The public has invested a good deal of capital in it, but by no stretch of the imagination can it get more than 4 per cent. out of it. There are 96 per cent. of the professions of the world that are here unthought of; the remaining 4 per cent., ministers, doctors, lawyers, and teachers, are all that are thought of. The argument on the ground of general culture is not a good one because it is general, never specific; and it is to be questioned whether or not the same or better culture cannot be gained by a different sort of high school."

J. Howard Renshaw, principal of the continuation school for machine-shop apprentices, described the plans and methods of this school, and discussed the

necessity for the development of industrial intelligence. He presented the importance of the attitude of the boy, and showed that it should be developed in four directions: (1) Respect for his trade; (2) respect for his fellow workmen; (3) respect for himself; and (4) respect for his employer.

The annual banquet was held on Thursday evening at the Hotel Sinton. Following the banquet, H. E. Miles, president of the Racine-Sattley Company, Racine, Wisconsin, spoke on the question, "How Shall the Obligation to Provide Industrial Education be Met?" He said:

"Industrial education is one of the greatest questions that can ever come before us. We are asked to shape the lives of the children of today, and thereby to make the men and women of tomorrow. Each year 2,500,000 children graduate from our elementary schools, proud and confident in having accomplished the first great task of their lives, in successfully finishing the eight-year course with credit. An equal number, a vast army of two and a half million little ones, most of them only 14 years of age, leave these same schools discredited, unsuccessful, aimless, most of them having got no farther than the sixth grade, having learned little else than the three R's, not educated in any sense, but only possessed of the rudiments whereby real education may be acquired. They have been, in a sense, schooled only in how to fail. . . . The manufacturers of the United States stand for industrial education, for its increase at the expense of the state and as a prime obligation resting upon the state, the increase in the industrial efficiency of the nation in all directions, and for the common good."

The same question was discussed from the point of view of organized labor in a forceful and impressive speech by Frank Duffy, secretary of the United Brotherhood of Carpenters and Joiners of America. An abstract of Mr. Duffy's address appears elsewhere in this issue.

The closing speech was the president's address by James P. Munroe, of Boston, who pointed out that society spends at least \$4,000 on every child that reaches the age of eighteen, which means a potential increment each year in the working capital of the country of four billion dollars. "A considerable portion we kill off before it reaches the age of 25 by accidents, half of which are avoidable. Two-thirds we kill off by preventable disease. A portion is permitted to go to waste thru intemperance, vice, and crime.

"For the greater part of this loss the industrial world is to blame. The remedy from education must be efficiency and a training, not so much in any particular trade, but of industrial intelligence."

The Friday morning session was held at the fine new building of the Ohio Mechanics' Institute, and the general topic discussed was, "What Types of Continuation Schools are most Needed in American Conditions?" Arthur L. Williston, principal of Wentworth Institute, Boston, described the advantages of evening, trade, and industrial schools, and contended that many different types of schools are needed to meet modern requirements, because of the variety and complexity of modern industry.

Dr. David Snedden, commissioner of education of Massachusetts, submitted the report of the committee which had been appointed to consider the Page bill, introduced into the United States Senate, the object of which is to encourage and

assist the promotion of vocational education in agriculture and the industries and household arts by means of grants of money from the national treasury. The committee approved the bill, in general, and offered two main arguments for the partial support of vocational education by the federal government: (1) The mobility of labor, and the futility of the development of workers by a given locality who go elsewhere; (2) Vocational education is an important contribution to the general economic improvement of the condition of society. Certain amendments in the bill as it now stands were suggested.

Two very interesting papers, on opposite sides of the question, were presented at the Saturday morning session. The question was, "Should Trade Schools for Pupils over Sixteen Years of Age be Provided at Public Expense?", the affirmative being upheld by Superintendent Carroll C. Pearse, Milwaukee, and the negative by George M. Forbes, president of the board of education, Rochester, N. Y. Superintendent Pearse called attention to the importance of the trade school, its prime object being the development in young people of interest in and respect for the trade being learned. The trade school must remove the ground for the criticism that has been made of certain schools that they train their students away from the trades, their graduates being dissatisfied with anything but foreman or superintending positions. He then presented very clearly the argument for public support of trade education by showing the difficulties inherent in any other plan. The interests of all concerned can not be conserved if control is entrusted to private capital alone, or to the manufacturers, or to organized labor.

Estimating the annual wages of an unskilled boy at the time of leaving the public schools at \$500, and capitalizing this income at four per cent., the boy may be considered as worth \$12,500 to society. Put the boy under tuition in an efficient trade school for two years, at an expense of, say, \$600. He should then be able to earn \$1,000 per year, and his income capitalized is \$25,000. By an investment of \$600 society receives a return of increase in capitalized value of \$12,500, or more than twenty times the cost. "Why not say that trade education is a good investment instead of an expense to the community?"

President Forbes, in referring to the experiments now being conducted in Rochester, explained that, for the boy, the school brings forward two years the date of beginning the learning of a trade by becoming a "shop," and prolongs the period of instruction two years by being a "school," hence the name "shop-school." He argued that the question as to public support of trade education must be answered in the affirmative for boys under sixteen years of age, because the shops are closed to them; boys are not wanted in the industries till after sixteen. The burden of proof rests on the affirmative, however, for boys over sixteen, and the answer is very doubtful. The affirmative must demonstrate that a cooperative plan is impracticable, and that the cost burden is not prohibitive.

At the business session on Saturday morning the following officers were elected: president, W. C. Redfield, Congressman from the Sixth District of New York, and vice-president of the American Blower Company, of Detroit; vice-president, Howell Cheney, South Manchester, Connecticut; secretary, J. H. Cone, New York; treasurer, Frederick B. Pratt, Brooklyn, New York.

Action was taken tending toward the enlargement of the membership of the society and toward making it more democratic in its system of securing financial support. A resolution was adopted also providing for the appointment of committees to cooperate with other organizations of the country in bringing influence to bear on the proposed national legislation for the support of vocational training.

—W. T. BAWDEN.

EDUCATIONAL BANQUET OF CHICAGO COMMERCIAL CLUB.

On the evening of the eleventh of November the Chicago Commercial Club gave a banquet at the Blackstone Hotel to about 180 members and guests. After full justice had been done to an excellent menu the subject of vocational education was introduced by Frederic A. Delano, the toastmaster, who read a letter from Frank A. Vanderlip, president of the National City Bank of New York. Mr. Vanderlip was to have been the first speaker, but was unable to be present. The first address was by Dr. Herman Schneider, dean of the College of Engineering of the University of Cincinnati, he was followed by Charles H. Winslow, Special Agent of the Bureau of Labor of the Department of Commerce and Labor, Washington, D. C.

Dean Schneider gave a rather striking analysis of work, taking for the top of his scale, or 100 per cent., the locomotive engineer as having the most energizing kind of work to do. For an illustration of the zero point on his scale, or the most enervating work, he referred to a girl in her formative years working in superheated air in a steam laundry. He would range all other work between these and rate each kind according as it allowed of (a) open air, (b) all round physical development, (c) mental growth, (d) the opportunity of the worker to learn the whole process of manufacture. He pointed out that the more automatic the work the greater the need is felt by the worker for something diverting—even spectacular, like a moving picture show, after the day's work is over. He was convinced that the schooling for such workers must therefore be in subjects not related to their work. "Any attempt to increase studies connected with their work will be a failure."

Mr. Winslow followed with a most encouraging statement. He said that he knew of a large corporation that had learned thru the part-time scheme for one year that it pays to educate men. They have therefore changed their policy with reference to keeping men on a single job, and now the men thruout the whole factory are shifted in their work every three months. Men now become interchangeable, which is a great advantage. The men are no longer mere automatic workers; they are becoming mechanics. It has demonstrated, too, that some of the automatic processes may be eliminated.

WISCONSIN'S NEW SYSTEM OF INDUSTRIAL EDUCATION.

The following is the first paragraph of an article under the above title written by H. E. Miles, president of the new Wisconsin Board of Industrial Education, which appeared in a recent number of *American Industries*:

"The essence of Wisconsin's new system of industrial education may be said to rest first upon the requirement that every child over seven years of age and in

good health, unless it has already finished the eighth year course in the elementary schools or its equivalent in parochial or private schools, shall go to school until fourteen years of age unless a formal permit is secured by the parents, or guardian, from an officer of the law, the Commissioner of Labor, a state's factory inspector, or the judge of the county, municipal or juvenile court. This permit requires that the child to which it is granted shall enter some useful occupation at home or abroad, and that even such children shall hereafter attend an industrial school for five hours in each week during six months of the year, and the wages of those in employment shall continue during these five school hours. The total hours of employment including the five school hours are limited to fifty-five hours per week with ample provision safeguarding the children from employment hurtful to body or character."

THE LUX FUND COMBINED WITH THE LICK AND THE WILMERDING ENDOWMENTS.

Founder's day at the California School of Mechanical Arts, popularly known as the Lick School, was made memorable this year by the announcement of two generous benefactions. Charles Holbrook, president of the trustees of the Miranda W. Lux estate announced that the trustees had entered into an agreement with the board of directors of the Lick School whereby the \$1,000,000 bequest of Mrs. Lux for the training of children in industrial science would be used in conjunction with the work now being done by that school. To this end a new structure will be built to be known as the Lux School of Industrial Training.

Principal George A. Merrill of the Lick School announced that the late Frederick B. McGinn had bequeathed \$25,000 for the erection and maintenance of a home for needy boys attending the Lick and Wilmerding Schools.

The Lux endowment having been joined with the Lick and Wilmerding funds, and the three placed under one management, insures for San Francisco one of the greatest industrial schools in the country. We doubt not that the biggest factor in first uniting the Wilmerding to the Lick endowment and now the Lux to the two has been the fact that the principal of the Lick School has not tried to make a university just because he had a large fund at hand, but has used the money as originally intended, creating a school that is in several respects a new type. To him that hath and useth well shall be given, is as true in the administration of industrial schools as it is in business or in morals. Three new buildings will be erected adjoining a small city park which has a commanding view of the city.

A NEW VOCATIONAL SCHOOL AT BRADLEY INSTITUTE.

The Manual Arts Department of Bradley Institute has recently moved into a large factory building which gives much room for expansion. Accordingly a vocational school for boys will be started next September. The boys will be in the school eight hours a day, five and one-half days a week, for two years. Four hours each day will be given to shopwork, two hours to drawing and two hours to shop mathematics and science, industrial geography and history, civics and English. One lesson and only one will be prepared outside of school hours

each day. The boys will be divided into two sections according to their shop-work, one taking woodworking and the other metalworking. Another section will pursue a four-year course leading to drafting.

The two shops where the students of this vocational school will get most of their instruction, will be organized as a producing factory turning out salable goods, thus making the conditions of instruction as practical as possible. To take charge of the woodworking department of this factory the Institute has just secured H. A. Parsons of Grand Rapids, Michigan, who for twelve years, was a foreman in the factory of the Sligh Furniture Company and later superintendent of the factory of the Grand Rapids Hand Screw Company and the Wilmarth Showcase Company.

The present evening classes for industrial workers will be a part of the vocational school and will offer work in drawing, mathematics, woodworking, metalworking, and other courses to meet demands.

A feature of the vocational school will be a short-term course for farmers during the three winter months. This will give instruction in (a) building and (b) machinery. The building course will include carpentry, cement work, elementary architectural drawing, mathematics, elementary science, and instruction in English. The machinery course will include forging, use of machine tools, repairing and operating farm machinery, study of mechanism, study of gasoline engine and electric motor, machine drawing, shop mathematics, elements of physics, and English.

The opening of the vocational school will also largely increase the facilities for training teachers and new courses are being outlined for men who wish to teach in technical high schools and industrial schools.

A CONTINUATION SCHOOL FOR GIRLS WANTED IN DETROIT.

In a recent report to the school board of Detroit, Superintendent W. C. Martindale recommended the establishment of a continuation school for girls from fourteen to sixteen years of age. This would be located in the down-town district where it would be accessible from all parts of the city. In this school it is proposed to teach dressmaking and garment making together with arithmetic, English, history, geography and civics. It is proposed to have sufficient breadth of instruction and flexibility of organization to enable a student to do extra school work during slack times in the industries. In connection with the school would be a vocational bureau. Previous to opening the school a thoro canvas of the field will be made in order to determine the greatest needs.

GROWING BELIEF IN THE VALUE OF CONTINUATION SCHOOLS.

In the 1911 report of the American Foundrymen's Association, Paul Kreuzpointner, the veteran advocate of industrial education, gives the following reasons for the growing conviction in the value of continuation schools:

First:—The success of these schools in Cincinnati and Boston.

Second:—The visit, to this country, last fall of Dr. George Kerschensteiner, Superintendent of the Schools of Munich, Germany, whose reorganized continuation schools are justly attracting the attention of the industrial and educational world.

Third:—That first-class trade schools are expensive and can be maintained only in large cities or with the support of the state.

Fourth:—That trade schools necessarily reach but the comparatively few, and leave out of consideration the large mass of industrial workers who cannot or will not sacrifice the time to learn a trade; but who, nevertheless, are in need of some kind of industrial education.

Fifth:—In the minds of many educators as well as manufacturers, continuation schools offer a partial solution, at least of some serious problems in our national educational system and for which no other form of industrial education seems to be so well adapted to give relief.

Later in the report Mr. Kreuzpointner gives the following definition of industrial intelligence, a term that has become very popular but is still indefinite in meaning:

"What does industrial intelligence consist of? The sum and substance of industrial intelligence, which should be one of the most valuable achievements of a broad industrial education, gives a man the power to see beyond the immediate performance of the operation at which he is engaged for the time being; the power to see the relation of his skill and the results of his work to the success or failure of the concern he is working for, to the success or failure of himself and his fellow workmen; the power to see the intimate connection and interdependence between his careful or careless, his intelligent or unintelligent, honest or dishonest action and his personal welfare and the welfare of those depending upon him and the welfare of the community at large.

"Industrial intelligence includes some knowledge of materials, ideas of their production and cost, ideas of the organization of a modern industry, ideas of the nature and extent of the business of the country, and a sense of duty and responsibility as a mechanic as well as a citizen. An education is of little value, when rated only by a purely commercial standard."

THE BAYONNE VOCATIONAL SCHOOL—CLASS OF SUB-NORMALS.

At the opening exercises of the new vocational school at Bayonne, N. J., in September, Superintendent Carr stated four plain facts that are worth thinking about in other cities. In calling attention to the unique character of the school he said:—"(1) It is the first public school to be opened to boys only. (2) It is the first that admits applicants on a basis of age, regardless of academic standing. (3) It is the first, whose entire faculty is composed of men. (4) It is the first that has for its object the fitting of the pupils for a trade."

A letter recently received from Principal Merritt W. Haynes, tells us that the school has already developed another unique feature. It has taken in a class of fifteen boys who are fourteen years old but of fifth grade rating. They are therefore sub-normal, and some of them have been regarded as incorrigible. They have been put in a special class under an experienced manual training teacher who gives them their academic as well as their handwork instruction. This class is kept entirely separate from the rest of the school and does not pretend to be on a trade or vocational basis, but it does relieve the school proper of a class of boys that are always attracted to vocational schools, and it means better instruction both to them and the rest of the school.

NEW SHOP-LABORATORIES FOR PITTSBURG.

The University of Pittsburg has just completed plans for a shop building which will be constructed at once. In many respects this building will be unique. Its fundamental purpose seems to be to fit students to do effective work under the cooperative system thru a laboratory study of processes and materials rather than thru the usual engineering school shop instruction. With this end in view the equipment will be somewhat unusual. For example, in the foundry there will be three cupolas—two small and one large, also the latest type of molding machine. The forge-shop will be in reality a mechanical laboratory with special facilities for the heat treatment of metals. Here will be gas, oil, and coke furnaces, a variety of pyrometers and a dark room. The machine-shop will continue the study of metals begun in the forge-shop and foundry.

The shops will occupy two 200-foot wings of a building which will be about 460 feet long and 40 feet wide. The inside is to be finished with a wainscoting of red bricks above which is to be white brick. Each section of the building will contain a locker-room, showers, storeroom, and offices for instructors. A recitation room will be provided for each two shops and so placed that apparatus can be moved directly into it for purposes of demonstration.

A COURSE ADAPTED TO LOCAL INDUSTRIES.

The evening industrial school at Lawrence, Massachusetts, has announced the following courses for 1911-12:—Cotton picking, carding and drawing; cotton combing and spinning; elementary cotton loom fixing and calculations; advanced cotton loomfixing and calculations; woolen and worsted manufacturing thru combing; woolen and worsted drawing and spinning; arithmetic for woolen and worsted carders and spinners; elementary woolen and worsted loomfixing and calculations; experimental and practical dyeing; commercial and industrial chemistry; elementary textile designing; elementary cloth and yarn calculations; advanced textile designing; advanced cloth and yarn calculations; elementary electricity; advanced electricity; steam engineering for firemen; steam engineering for engineers; arithmetic for firemen and engineers; blue-print reading; arithmetic and machine drawing; blue-print reading, arithmetic and architectural drawing.

This school was established by the state and city acting jointly, and the expenses of maintaining the school are assumed in equal amounts by the state and city. The instruction, however, is not limited to residents of Lawrence. Any resident of any city or town in Massachusetts may attend free of charge.

VOCATIONAL SCHOOLS OF BOSTON CHARTED.

Charts of the industrial school work of Boston, Massachusetts, have been prepared by the committee on opportunities for vocational education of the Woman's Municipal League. Several charts are now in use and others are in process of preparation. They are a truly remarkable work having been prepared with extreme care and by means of careful deliberation and consultation. The data used concerns four hundred Boston institutions, two hundred and twenty-one of these presenting distinct opportunities for vocational work. The committee

in making these charts consulted eighteen educational experts, including members of the state board of education, the heads of the educational and sociological departments of Harvard, Radcliffe, Wellesley, Simmons colleges, the School for Social Workers, the directors of Boston's public school system, members of the governing board of the vocational bureau, the Chamber of Commerce, and the Women's Educational and Industrial Union. The charts are simple in form, but complete and accurate, no pains having been spared to make the information exact. They have been placed in the public schools, settlement houses, factories, and other places in the city. They are consulted by the vocation bureau, public school vocational supervisors, parent's associations and others interested in industrial work. An example is Chart No. 1 which deals with elementary industrial training. On it are listed twelve schools, all free. Eight are maintained by the city of Boston, namely, the Mechanic Arts High School, High School of Practical Arts, Trade School for Girls, North Bennet Street Industrial School, and different branches of evening and industrial schools. The schools not maintained by the city are the Y. W. C. A. Training School for Household Service, and the Dorchester, Daly, and Hebrew industrial schools. These charts are proving of interest to people outside of Boston, requests for information concerning them having come in from many places.

PROGRESS OF THE SPRINGFIELD VOCATIONAL SCHOOL.

The city of Springfield, Massachusetts, has decided to continue its vocational school as one of the independent industrial schools of the state. The school was organized two years ago on an experimental basis, with an enrolment limited to fifty boys, and given temporary quarters in the technical high school building. It was thought best to begin the experiment without the assistance of the state, in order that the local school board and those in immediate charge of the new school might have an entirely free hand in shaping its course of instruction to meet peculiar local needs and conditions. A tentative scheme of shopwork and correlated bookwork was recommended by Superintendent Gordy, adopted by the school board and put in operation. This course, which was published in the April, 1909, number of the *MANUAL TRAINING MAGAZINE*, has been followed, with some modifications, for the two formative years just passed. They have been years of trial in a double sense, as is usually the case with pioneer efforts in education. The school has been hampered not only by the untried nature of its problems but also by lack of equipment of its own, by inadequate quarters, and by the difficulty of securing competent teachers. But it has steadily grown in favor from the first. Pupils, parents and taxpayers have already recognized its value; and, under its principal, Egbert E. McNary, it gives promise of rapid and successful development.

Positive evidence of the success of this school is found in its organization under the state law for the promotion of industrial education. This necessitates the removing of the school to larger quarters, better suited to its work. The city government has appropriated \$10,000 for additional equipment and for maintenance, one-half of which sum, however, is to be refunded by the state. The local school board will retain full control of the school but, in determining its policy, they will be guided by the advice of the experts of the State Board of Education.

Two years ago the promoters of the school thought themselves fortunate in securing an appropriation of \$1,000 with which to make a beginning. An appropriation of ten times that sum at the beginning of its third year indicates rapid progress for this phase of industrial education in Springfield.

VOCATIONAL IDEA IN BUFFALO.

Buffalo, New York, opened a trade school for girls in September. There are four vocational schools for boys already in the city. The girls' school will be conducted on the same plan as the boys' school; "half time at shopwork and half time at book work." In the shops the girls will learn cooking, housekeeping, sewing, dressmaking and millinery. The book work will be correlated with the shopwork and will be so taught as to fit the special needs of girls. Other lines of shopwork will be introduced gradually, as it is believed that many girls need training for making a living as well as for making a home.

The work in vocations for boys is progressing finely and seems to be firmly established. The subject matter covered in these schools is not very extensive but each course is very carefully planned and taught in a well-equipped shop. The four schools are located in or close to public schools, as no special buildings have as yet been provided. The schools are kept separate, however, as to organization. In the first of these four schools, the Seneca, carpentry, cabinet-making, printing, and electrical construction are taught. As in the three other schools, boys must have completed the sixth grade and must be over thirteen years of age to enter.

For the academic work, the school has two divisions, A and B. In the B division are placed all who have not completed the seventh grade. The A pupils take up practical high school subjects, while the B pupils have grammar grade subjects. The book work is strictly correlated with the shopwork in both cases. In the Black Rock vocational school, cabinet-making, wood-turning, pattern-making, molding, and mechanical drawing are taught. The molding room has six hundred feet of floor space and is equipped with snap-flasks, coke ovens, forge, benches, and all necessary tools for elementary molding. The machine room contains a jointer and a universal saw, each run by separate motor. The book work in this school includes a study of economics and industrial history. Printing is especially emphasized and provided for at the Broadway vocational school of printing. The printing department is supplied with a ten by fifteen platen press, a one-third H. P. electric motor, a twenty-four inch paper cutter, a wire stitcher, a mitering machine, a proof press, a lead and rule cutter, an imposing stone, individual racks and type cases for every pupil, a complete assortment of type and all modern printing office furniture, all selected with especial reference to the needs of the school.

Pupils graduating from these three schools receive junior trade school certificates issued by the state education department. Two more years spent in advanced work entitle the students to senior industrial certificates from the state.

The boys of the Rother Avenue school are largely Polish and without any knowledge of tools or tool processes. The work is naturally of a more elementary character than in the other vocational schools, but it is kept strictly practical. Carpentry and cabinet-making are taught in addition to the grammar school branches. These boys are laying floors and building partitions in the school building as well as turning out furniture of various sorts.

TRAINING TEACHERS FOR INDUSTRIAL SCHOOLS.

The University of Wisconsin, anticipating the demand for industrial teachers to take positions in industrial schools which are likely to be organized under the new Wisconsin industrial educational law is performing the following experiment:—

A class of sixteen journeyman pattern-makers has been organized in Milwaukee by the Extension Division of the University to prepare men to teach industrial woodwork. The majority of these men are employed in the Allis Chalmers plant in West Allis. The class therefore meets in the high school building of West Allis altho at times it will meet at the Trade School in Milwaukee.

On alternate Wednesday nights the instruction given is in teaching methods. This work under the administration of the Manual Arts Dept. of the University, is personally conducted by Professor Fred D. Crawshaw. Up to the present time in this class courses in pattern-making have been outlined and discussed with reference to the principles of pattern-making and molding and their sequence. The courses are outlined on the group basis. From each group each member in the class must select one pattern, and for it he must make two large drawings suitable for use before a class at the time of a demonstration. One of these drawings represents the casting as finished in the machine shop, the other the pattern with dimensions to indicate the allowance for draft, shrinkage, finish and "unusuals." The individual also makes the pattern. For its construction he writes out such instructions as he would give to a class, and also outlines his own demonstration.

By completing these four steps for one pattern in each group, each member of the class will have material which represents a course in pattern-making and the methods by which such a course may be taught.

Similarly courses in wood-turning, first and second year benchwork, furniture making and framing will be considered. Also mechanical drawing will be studied in an extension course in this subject, supplemented by class work in teaching methods. With reference to these it should be understood that each member of the class besides observing the teaching of the instructor and writing out the demonstrations and instructions which he would give to a class, conducts lessons before the other members of his own group.

On intervening alternate Wednesday nights the class is given work in shop mathematics. The instructor is Professor K. G. Smith, superintendent of the University Extension Division in Milwaukee. Professor Crawshaw said recently of this experiment, "How much work Professor Smith and I will be able to accomplish in one season it is difficult to say. It is hoped that our work may be continued without serious interruptions until the subjects of commercial geography, industrial history and English will have been covered by the class. If this shall be done, it should be proven, in at least one small group, whether or not, shop men of intelligence with a minimum of supplementary academic and professional training may not become good, perhaps the best, teachers for industrial education."

REVIEWS

Agriculture for Young Folks. By A. D. and E. W. Wilson. Webb Publishing Company, St. Paul, Minnesota, 1910; $5\frac{1}{4} \times 7\frac{1}{2}$ in., pp. 340, with illustrations; price,

This is a remarkably practical textbook on agriculture for the use of eighth-grade pupils, for pupils in the first or second year of high school, and for boys and girls on the farm who have finished their education in the rural school and cannot leave the farm to attend high school.

The book deals largely with common farm practices rather than with scientific principles, but enough practical reasons are given for the methods of procedure in these farm operations, to arouse the intelligent interest of the boy in the underlying principles of agriculture and to provide incentive to apply these suggestions to his farm work night and morning, and to continued work during the summer months.

The material falls under five heads:

1. Tillage and seed selection;
2. Field crops—corn, potatoes, hay;
3. Live stock—housing, feeding, cost of production, marketing;
4. Farm management and farm accounts—a practical appeal for proper business methods on the farm.
5. Better farm life—ideal farm home, good roads, cooperation.

This little book is practical in its school material, is equally strong in its appeal for a broader view of agriculture as a profession, for better business methods in farming and for a more ideal community life. For these reasons it is adapted not only to the school boy but to the other members of the farm home, to those interested in starting agricultural clubs, and to all those interested in promoting a better agriculture.

—AUGUSTA D. EVANS,
University of Illinois.

Machine Shop Practice. By William J. Kaup. John Wiley & Sons. 1911; $5\frac{1}{2} \times 8\frac{3}{4}$ in., 227 pages; price \$1.25 net.

This book is written out of a full knowledge of practical shop conditions, and is therefore suitable for use in trade, industrial and technical schools, modern machine shops and manufacturing plants. It is not as large as many books on this subject but it is quite complete.

The first four chapters treat of vise work and hand tools, chapter five of materials of construction. Then follows a chapter each on drill presses, planers, and shapers, lathes, boring mills, milling and grinding machines. The two chapters on cutting tools, giving their proper shape for use in the different machines and the positions in which to set the tools, are especially good. The explanation of the change gears for the lathe, the dividing head of the milling machine, and the use of the measuring instruments are clear. The chapter on gearing is brief but gives the reader a good understanding of the subject. The one on the treatment of tool steel explains heating, cooling and the methods of drawing the temper, at the same time stating that the grade of steel to be used

depends upon the work for which it is intended. The last chapter is on shop system. The questions at the end of each chapter help the reader to more clearly understand the contents of the chapter.

This should be a very useful book for students, shopmen, and apprentices. Mr. Kaup gives many suggestions that are helpful in the shop and not found in other books on this subject.

—W. F. RAYMOND.

Addresses to Engineering Students. Edited by Waddell and Harrington, Kansas City, Mo., 1911; 6x9 in., 493 pages; price, \$1.00 for a single copy, or 75c when ordered in quantity.

This is a collection of forty-four addresses, most of which have been delivered to engineering students. They are probably the best addresses of the kind obtainable and were delivered by engineers of high repute, by well known educators, and by men prominent in public affairs. Each address is preceded by a brief introduction in which something is said of its author.

The addresses give an insight into the engineering profession, the character of its work, and the qualifications necessary for success in it, from the different points of view of many men. The addresses as a whole are broad, comprehensive, inspiring, and certainly well expressed. Especially noteworthy is the high standard of ethics that is set by some of the writers.

All interested in the engineering profession, and especially the student members, should be grateful to the editors for a book that is so valuable and readable and that is well bound and printed, at a cost that barely pays for the printing.

—FREDERICK H. EVANS.

The Hindu-Arabic Numerals. By D. E. Smith and L. C. Karpinski. Published by Ginn and Company. 160 pages, with copious foot-notes and references.

In the Hindu-Arabic Numerals is given a very interesting and scholarly exposition of what is known concerning the origin, growth and introduction of our common system of numerals. They point out that the name Arabic is misleading, as it is most probable that our common numerals had their origin in India. It is hardly to be doubted that they were known early in the Middle Ages by many merchants of Christian Europe long before the Arabs conquered northern Africa. It is a strange fact that such a labor-saving device should have succeeded only within the last four centuries in gaining acceptance in the transaction of commerce, and that today they are known to but a small fraction of the human race. The book is well worth a careful reading by those who are interested in knowing how things that are came to be.

—C. E. COMSTOCK.

RECEIVED.

Education for Industrial Purposes. A report to the Ontario Minister of Education prepared by John Seath, Superintendent of Education. This volume of 390 pages deserves the place of honor among all the reports we have seen on the subject of industrial education. In collecting the material many schools were visited in England, Scotland, France, Germany, Switzerland and the United States. The report is boiled down to essentials and these are presented in convenient form for reference.

Industrial Education. September number of Teachers College Record, Columbia University, New York City. Price, 30 cents.

This contains three articles each of considerable length. The first is on "Industrial Arts Education and Industrial Training" by Frederick H. Sykes. In this the "problem" of industrial education is stated and then discussed with reference to elementary and then secondary schools. The second deals with "Modifications within Public or General School Programs to meet Industrial Needs" by Frederick G. Bonser. This summarizes such modifications in Germany, France, England and the United States and closes with some constructive suggestions. The third article is on "The Cost of Industrial Education in the United States; A Study of Fifty Typical Schools" by H. C. Brandon. In this it is shown that "the median cost of industrial education is \$4.80 per pupil per month with a variation of 126 per cent. of the median."

Milwaukee Public School of Trades for Girls. Prospectus for 1911-12, outlining courses and giving illustrations of equipment and pupils at work.

Vocational Guidance. Library Bulletin issued by the New York School of Philanthropy, 105 East Twenty-second St., New York City. A selected list of books, reports, etc.

Catalogue and the Annual Report of the United States Indian School Carlisle, Pa. M. Friedman, Superintendent. Describe the courses in the several industries taught in the school. Fine examples of the work of the school printing shop.

Annual Report of the Schools of Winnebago County, Illinois. O. J. Kern, Superintendent, Rockford, Ill. Describes and illustrates some remarkable rural school work.

The Boy and His Job. By Harry E. Downer. A paper read before the Contemporary Club of Davenport, Iowa. A discussion of the problems of vocational education.

Neighborhood Improvement Clubs. For the Rural, Village and Town Communities of Kansas. By Edwin L. Holton, Agricultural College, Manhattan, Kansas. A 13-page pamphlet giving detailed information.

Bulletin of the State School of Agriculture. Crookston, Minn. 1911-12.

Annotated List of Books Relating to Industrial Arts and Industrial Education. Prepared by the School of Industrial Arts, Teachers College, Columbia University, New York, N. Y. Price, 15 cents. This is a very helpful guide to the best literature on the several subdivisions of the manual arts and industrial education.

Industrial Education. By Walter E. Ranger. Special Report of the Commissioner of Public Schools, authorized by the General Assembly of the State of Rhode Island, Providence, R. I., 1911. Describes the different types of industrial education, briefly tells what is done in the several states of the United States and in foreign countries and then discusses the present status, needs and opportunities in the State of Rhode Island.

Four Systems of Dairy Farming and the Profit on Each. By Wilber J. Fraser and Royden E. Brand. Circular No. 151, Agricultural Experiment Station, University of Illinois, Urbana, Ill.

Feeding Dairy Cows. By C. C. Hayden and *Feeding Farm Work Horses.* By Rufus C. Obrecht. Bulletins from the Agricultural Experiment Station, University of Illinois, Urbana, Ill.

Catalogue of the Baron de Hirsch Trade School, 222 East 64th Street, New York City.

Machinists' Trade Course. Bulletin of the Williamson Free School of Mechanical Trades. Williamson School, Pa.

Economic Conditions in the Philippines. Outline of a course of study for fourth-year high school students. By Hugo H. Miller of Bureau of Education, Manila, P. I.

Annual Report of the Superintendent of the Boston Public Schools. 1910. This report gives a large amount of space to details of the vocational schools in Boston. It contains many illustrations.

The School of Apprentices. The Lakeside Press, Chicago. Announcement, 1911.

Proceedings of the Sixteenth Annual Convention. National Association of Manufacturers, 30 Church Street, New York, N. Y. This contains the report of the committee on industrial education of which H. E. Miles of Wisconsin was chairman, also the views of the president of the Association, John Kirby, Jr., of Dayton, Ohio, on the same subject.

Industrial Schools. Department of Education, Ontario, Canada, September, 1911. Recommendations for the establishment and organization of general, special, and cooperative industrial schools.

The Tree Planters of America. Issued by The National Business League of America, Chicago. A pamphlet of 48 pages giving details of a plan for organizing farmers' boys in the interests of reforestation of the United States, and the extension of practical Arboriculture.

American Universities, American Foreign Service and an Adequate Consular Law. Issued by the National Business League of America, Chicago. Tells what American universities offer to men who wish to enter the consular service.

Report of Committee on Industrial Education, American Foundryman's Association. By Paul Kreuzpointner, Altoona, Pa. Contains a statement of reasons for the growth of the continuation school idea during the past year.

The David Ranken Jr. School of Mechanical Trades. Second annual catalog, 1911. Contains outlines of courses of instruction and illustrations of interiors of workrooms.

Cooperative Industrial Education. A plan for trade school work in Columbus, Ohio, by J. H. Gill, director of Columbus Trade School.

Style Book of the Department of Printing. Columbus Trade School, Columbus, Ohio. This covers spacing, paragraphing, compound words, punctuation, capitalization, tabular matter, making up, etc. This was printed by the boys for the boys.

Results of Scientific Soil Treatment. By Frank I. Mann and Cyril G. Hopkins. Circular No. 49 issued by the agricultural experiment station of the University of Illinois, Urbana, Ill.

VOCATIONAL EDUCATION

MARCH, 1912

THE SCOTTISH SYSTEM OF CONTINUATION SCHOOLS.

EDWIN G. COOLEY.

IN the article on the Crefeld Schools, published in the November number of VOCATIONAL EDUCATION it was pointed out that the continuation school is a supplement to the apprenticeship system of Germany. The master's shop is the basis and center of the industrial education of the apprentice, the school being called in to supplement it—especially on the theoretical side. The existence of a strong, well-organized system for training the youth thru apprenticeship is an advantage the German has over the English, Scotch or American; an advantage which makes it comparatively easy for him to deal with the problem of the vocational training of the youth.

In the article in the January number, an attempt was made to show the English method of dealing with the problem; a method that seemed to the writer to be worthy of careful study, but far less effective than the one employed in Germany. Part of the difficulty in England is due to the lack of a well-organized system of apprenticeship and part of it to the lack of faith on the part of the ordinary Englishman in schools as instrumentalities for promoting efficiency. The Englishman, too, has neglected to give adequate consideration to the inability of the ordinary youth of fourteen to bear up under the two-fold strain of shopwork in the day time and school work in the evening. Up to the present time, English authorities have not required by law attendance at continuation schools on the part of youth who have left the elementary school at fourteen and gone to work. At present many things indicate a desire to change this situation, and to provide for both compulsory attendance in industrial schools, and to arrange for at least a part of

the work in the day time. The Scotch have already taken one decided step in this direction.

Conditions in Great Britain resemble those in America. A sketch of the situation, as it presents itself in Scotland, seems likely to be especially instructive and helpful to Americans who are considering the question of industrial education for the youth.

The Scotch have already secured legislation which must be noted by everyone studying their industrial schools. The following are the sub-sections:

COMPULSORY ATTENDANCE ACT.

(1) Without prejudice to any other power of a school board to provide instruction in continuation classes, it shall be the duty of a school board to make suitable provision of continuation classes for the further instruction of young persons above the age of fourteen years with reference to the crafts and industries practiced in the district (including agriculture if so practiced and the domestic arts), or to such other crafts and industries as the school board, with the consent of the Department, may select, and also for their instruction in the English language and literature, and in Gaelic-speaking districts, if the school board so resolve, in the Gaelic language and literature. It shall also be their duty to make provision for their instruction in the laws of health and to afford opportunity for suitable physical training.

(2) If it shall be represented to the Department on the petition of not less than ten ratepayers of the district that a school board are persistently failing in their duty under the foregoing subsection, the Department shall cause inquiry to be made and call upon the board to institute such continuation classes as appear to the Department to be expedient, and, failing compliance, may withhold or reduce any of the grants in use to be made to the board.

(3) It shall be lawful for a school board from time to time to make, vary, and revoke byelaws for requiring the attendance at continuation classes, until such age, not exceeding seventeen years, as may be specified in the byelaws, of young persons above the age of fourteen years within their district who are not otherwise receiving a suitable education or are not specially exempted by the school board from the operation of the byelaws, and that at such times and for such periods as may in such byelaws be specified. Such byelaws may also require all persons within the district having in regular employment any young person to whom such byelaws apply, to notify the same to the board at times specified in the byelaws, with particulars as to the hours during which the young person is employed by them:

Provided that no young person shall be required to attend a continuation class held beyond two miles measured along the nearest road from the residence of such young person.

(4) This subsection provides for the application of the Public Health Act of Scotland.

(5) If any person fails to notify the school board in terms of any such bye-

laws in regard to young persons employed by him, or knowingly employs a young person at any time when his attendance is by any such byelaw required at a continuation class, or for a number of hours which, when added to the time required under any such byelaw to be spent at a continuation class, causes the hours of employment and the time so spent, taken together, to exceed in any day or week, as the case may be, the period of employment permitted for such young person by any Act of Parliament, he shall be liable on summary conviction to a penalty not exceeding twenty shillings, or in case of a second or subsequent offence, whether relating to the same or another young person, not exceeding five pounds.

(6) If any parent of a young person by wilful default, or by habitually neglecting to exercise due care, has conduced to the commission of an offence under the immediately preceding subsection or otherwise, thru failure on the part of the young person to attend a continuation class as required in any such byelaw, he shall be liable on summary conviction to the like penalties as aforesaid.

Sub-section 1, of the Scottish Education Act referred to, provides that it shall be the duty of school boards to make suitable provision in continuation classes for the further instruction of young persons above the age of fourteen years with reference to the crafts and industries practiced in the district. It will be noticed that this includes agriculture and domestic arts; and that the Act further provides for instruction in languages and literature, together with the laws of health and physical training. The work here is left to the local boards of education, and not referred to special boards created for the management of these schools, as is usually the case in Germany, and as is provided by the laws of Wisconsin. Germany's experience has seemed to indicate that the coupling up of the management of these two types of schools has not usually been successful.

Sub-section 2 provides for a method of compelling boards of education to do their duty in providing such continuation classes; and provides for penalizing them by reduction of their grants in case of disobedience. This provision seemed necessary on account of the hide-bound conservatism of some educational boards who will neglect the new and unorganized form of education for the old and established one. Germany has found it best to entrust the new form of education, at least in the beginning, to separate organizations of men interested in the new movement.

Sub-section 3 permits local school boards to compel attendance of youth at the continuation classes up to, and not exceeding, seventeen years of age, unless already in attendance at another school, or specially exempted by the school board from the operation of the byelaw. This sub-section contains a further very important provision: that all persons

having in their employment any young person to whom any such byelaw applies must notify the school board at certain specified times, stating particulars as to hours during which the young persons are employed by them. Some such provision is absolutely necessary for the successful working of the law.

Sub-section 5 compels employers to provide time for the attendance of young persons in their employment at the continuation school; and further provides that the hours spent in continuation classes are to be counted in computing the hours of employment of such young persons. This will prevent the practice of employing people a full number of hours in the shop, and then requiring them to do their school work in the evening. It will lead, in many cases, to employers granting time during the day for such continuation classes, as employers who cannot keep the boy at work will be willing that his school instruction shall be carried on at such times as are best calculated to render him more efficient. This provision is very important, and under intelligent supervision will lead to a gradual transfer of a large part of the evening continuation class work to day classes, where it will be possible to do genuine educational work.

Sub-section 6 compels parents to assist school officials in carrying out this Act. Taken with the provision relating to employers, it will make it possible for any community so desiring to establish a genuine system of continuation classes providing for regular attendance at such hours and place as will make possible thoro and efficient work.

Taken together, the provisions of the Scottish Act seem to provide for taking a long step in the direction of proper vocational instruction for youth. Altho it does not provide for general compulsory attendance, it enables communities, desiring it, to have it. While it does not provide for day instruction, the general tendency of the act will be to promote this most important phase of the work. The Act places Scotland a long way in the advance of England, altho it seems probable that Parliament will soon enact a similar law for England. A similar bill has already been prepared by Mr. Runciman with a view of submitting it to the English Parliament.

Steps have already been taken in some school districts in Scotland to provide for compulsory continuation classes. The matter is being discussed in both of Scotland's greatest cities—Glasgow and Edinburgh. Both of these cities have vocational schools, but have not yet taken full advantage of the provision of the Scottish Education Act with reference

to compulsory attendance. Rivalry between these cities is intense; and one or the other will soon get into line with the provisions of this Act.

RESPONSIBILITIES OF SCHOOL BOARDS.

Sir John Struthers, Secretary of the Scotch Education Department, in his report for the year 1910-11 discusses the purposes of the Law, and the responsibilities of School Boards in carrying it out. His statement is very important, and I shall give a large part of it. I have seen nowhere else so clear and thoro a statement of the case for the continuation school.

Up to recently, it has been no part of the duties of the school board under the statutes (or, indeed, of any other public body) to take cognizance of the period of adolescence; to reinforce parental authority at the time when it is most needed, but is, in point of fact, weakening from natural causes; to guide and advise young persons as to choice of occupation, or even to put before them much needed information on the subject; to ascertain what further systematic instruction is needed to enhance the efficiency of all persons in their several occupations, and to make them more useful citizens; or to see that suitable means of further education with these practical ends in view are actually provided. It is broadly true that school boards, as such, have hitherto stood in no sort of relation to young persons over fourteen years of age, or had any responsibility for providing for educational needs of adolescents.

It is becoming increasingly clear that a national system of education founded on such principles can be at best but a qualified success; that is the experience of other countries as well as of our own, and everywhere the progressive nations of the world are bestirring themselves to make the proper instruction, control and discipline of adolescents a matter of State concern.

Besides laying a definite responsibility upon school boards for the further education of adolescents, the Legislature has indicated generally, but without prejudice to the provision of other forms of instruction, certain lines which that further education should follow, viz:—

1. The maintenance and improvement of the health and physique of the young people;
2. The broadening and refining of their interests and sympathies by the influence of good literature;
3. The equipping them with a competent knowledge of some craft, industry or occupation which offers a reasonable chance of providing a means of livelihood in adult years.

To this may be added a system of training adolescents in the responsibilities and duties of communal life, as well as of its rights and privileges.

The foundation of all continuation class instruction should be laid in the Supplementary Courses of the day school, and it is to the proper organization of this part of the work of the day school that the attention of boards should, in the first place, be directed. Some course of the kind should be placed within the reach of every day school pupil between 12 and 14. Much greater pains should be taken

to adapt the instruction to the probable future occupations of the pupils, and a vigorous effort be made to ensure that a much smaller proportion of the pupils leave the day school without something approaching to two years' experience of Supplementary Course work.

In the more populous districts of Scotland, it has been found more convenient to provide the equivalent of Supplementary Courses of instruction, for pupils who have left school without it, in classes distinct from those of the day school. Hitherto, such classes have been held in the evenings, and it may be difficult owing to industrial conditions to make any great change in that respect. But the disadvantages attached to evening class instruction, following upon full time occupation during the day, are undoubtedly very grave; so grave, indeed, in some cases as to make it doubtful whether they do not outweigh the advantages. Public opinion among employers should favor attendance at suitable evening classes as a part of that instruction in a trade or industry which an employer is supposed to provide for his employees in those trades in which there is a regular system of apprenticeship, and, therefore, as nominally falling within the regular hours of employment. It is even more important that a sense of responsibility for the future of young persons in their employment should be created among employers in those industries in which there is no semblance of an apprenticeship, and in which the labor of adolescence is too often in no sense whatever a preparation for earning an independent livelihood. School boards in industrial districts have no more pressing task before them than the fostering by all means in their power of a movement for the better use of the years of adolescence as a preparation for adult life. They must associate with themselves representatives of employers and employed, and must join hands with every agency having for its object the industrial efficiency and social well-being of the community. They must also have regard to the exigencies of particular employments, and adapt their classes thereto both as regards the times at which they are held and the nature of the instruction given therein.

To recapitulate, it is suggested that as a discharge in some measure of the duties laid upon them by the recent Act:

1. School boards should, according to their opportunities, see to the establishment in their day schools of efficient Supplementary Courses with in all cases satisfactory provision of practical work for both boys and girls as indicated in Schedule VI. of the Code.

- II. When the provision of properly qualified teachers of certain subjects of the Supplementary Course is beyond their resources, they should invoke the help of the Secondary Education Committee, who may provide such teachers for groups of schools, and also aid in the supply of any necessary equipment.

- III. The work of the primary school should be so ordered as to secure to pupils of average ability and diligence from one and one-half to two years of Supplementary Course instruction before leaving the Day School.

IV. Arrangements should be made whereby pupils who have not received this minimum of instruction should obtain it either by further attendance at the day school at certain seasons of the year (rural districts), or by attendance at classes specially provided (Preparatory Courses, Division III., of Continuation Class Code).

V. The larger school boards for themselves, and in other cases the Secondary Education Committees, should, in cooperation with the relative Central Institutions, establish at suitable centers within their districts classes for the further instruction of those who have received the aforesaid minimum of Supplementary Course Instruction (Division III. Classes).

VI. The organization of these classes should be based upon a careful survey of the occupations of the district, distinguishing between those which do and those which do not offer a prospect of employment suitable for adults.

VII. In so far as the subject-matter of these courses involves the treatment of principles of science or of art, the study of which may be carried to a higher stage, the classes should be definitely affiliated to the appropriate Central Institution¹ and the program of work definitely related to that of those institutions. In addition, every endeavor should be made to bring the whole work of these classes within the sphere of influence of the Central Institutions, so that all forms of technical work, even of the lowest grade, may benefit by the knowledge and experience of the best experts available.

VIII. As an important, if subsidiary, part of the program of work of such classes, arrangements should always be made for the instruction of the students in English, in the laws of health, and the duties of citizenship, while opportunity should be offered for suitable physical exercise.

IX. Each Board should for itself make a census of young persons between 14 and 18 in its district with a view to ascertaining the extent to which they are profiting by the opportunities offered, and to considering whether or not they should avail themselves of their powers under the Act to make byelaws requiring attendance at continuation classes in certain circumstances.

X. Before applying compulsion every effort should be made, by the provision of suitable instruction at convenient hours, by conferences with

¹Higher technical, art and commercial schools cooperating with the continuation schools.

employers and associations of workmen and by cooperation with other agencies, to stimulate voluntary attendance. When compulsion is resorted to, it might be limited in the first instance to those who have not received the minimum of Supplementary Course instruction specified above before leaving the day school.

XI. The information as to young persons and their employments necessarily accumulated for the proper organization of continuation class work may be turned to useful account in another direction, viz., in facilitating the work of agencies established under the Act for aiding young people and their parents in the choice of employment. The establishment of such agencies, in industrial districts at all events, is a matter of the highest importance; and it is almost equally important that such agencies should be in close relationship to the public authority charged under the present Act with the duty of making suitable provision of continuation classes for the further instruction of young persons above the age of 14 years with reference to the crafts and industries practiced in the district.

CONTINUATION SCHOOLS IN EDINBURGH.

Edinburgh is carrying out this plan of operation in a most thorough way. I shall attempt a description, using freely the reports published by the Edinburgh school authorities. The following is a general outline of the scheme of construction proposed for the session of 1910-11 in accordance with the new Code of regulations for the continuation classes. The subjects of instruction as outlined by the Scottish Education Department are grouped as follows:

Division I. Classes for the Completion of General Elementary Education.

English and Arithmetic, and one or more of the following: The Empire, Civics, The Laws of Health, Drawing, Woodwork, Common Commercial Documents, Needlework, Cookery, Laundry Work, Dress-Making, Millinery.

These classes are intended for pupils who have not had a full course of elementary instruction in the day school; or, who, by reason of not proceeding directly to the continuation classes on leaving school, find it necessary to review the elementary subjects before entering upon one of the courses for specialized instruction. Pupils under the age of 14 years are not admitted unless they have been exempted from attendance at the

day school. The work of these classes corresponds generally with that of the Supplementary Courses recommended by Sir John Struthers, which are given in the last two years of the elementary school.

Division II. Classes for Specialized Instruction. This division shall comprehend classes for the elementary instruction of pupils in special subjects—especially such as may be of use to pupils who are engaged in or preparing for any particular trade, occupation, or profession.

Pupils may be admitted to classes under Division II. at the discretion of Managers, provided that due regard is had to the previous instruction of the pupils in elementary subjects, and to their fitness to profit by the instruction given.

The following classes of pupils will be eligible to enter Division II:

- I. Pupils over 16 years of age at the date of joining the class.
- II. Pupils under 16 years of age who—
 - (a) Have been one year in an approved Supplementary Course; or
 - (b) Have attended at least thirty meetings of a course conducted under Division I., and obtained a certificate of satisfactory proficiency from the managers of such course; or
 - (c) Have been in attendance for at least one year as duly qualified pupils at a Higher Grade School or Department, or at a Secondary School.

SUBJECTS OF INSTRUCTION.

The subjects of instruction may be classified under the following heads:

- (A.) *English Subjects*—English, geography, history, the life and duties of the citizen.
- (B.) *Languages*—The study of any language, ancient or modern, approved by the Department.
- (C.) *Commercial Subjects*—Commercial arithmetic, handwriting, bookkeeping, shorthand, commercial correspondence, business procedure, commercial geography. The study of any language (including English) with a direct view to its use in business.
- (D.) *Art*—Drawing and modeling; elementary design.
- (E.) *Mathematics*—Elementary geometry, algebra, mensuration, dynamics.
- (F.) *Science*—The elementary study, theoretical or practical, of physical or natural science, or any branch thereof.

(G.) *Applied Mathematics and Science—*

- (a) *General*—Practical mathematics, including technical arithmetic and the use of mathematical instruments and tables; mechanical drawing.
- (b) *Special*—The application of mathematics and science to specific industries. Machine construction, building construction, naval architecture, electrical industries, mining, navigation, architecture, horticulture, or any other industry the scientific principles underlying which admit of systematic exposition.

Where the nature of the subject requires it, previous or concurrent study of (G) (a), or of the related branch of (E) or of (F), will be made a condition of taking any subject under (G) (b).

- (H.) *Handwork*—Elementary instruction in the use of tools—woodwork, ironwork—with concurrent instruction in drawing to scale, and the practice of such occupations as needlework, cookery, laundry work, dairy work, with accompanying explanations of processes.
- (I.) (a) Ambulance work (practice and theory).
- (b) Physical exercises.

The class in each subject or group of related subjects attended by the same pupils must meet not less than one day a week for such length of session as may be approved by the Department. When a session of less than twenty weeks is proposed a statement of the circumstances in which a shorter session is thought desirable should be given. Each meeting shall be of not less than one hour's duration or, in the case of subjects of practical instruction, 1½ hours.

By practical instruction is meant instruction under heads (F), (G), or (H) which proceeds mainly by means of actual experimental work on the part of the pupils themselves in properly equipped laboratories or workshops, supplemented by the necessary explanations and demonstrations. Supplementary theoretical instruction may be reckoned as part of the practical course, but to an extent not exceeding one-half of the time occupied by the pupils in practical work.

Division III. Courses for Specialized Instruction. This division shall comprehend organized courses of systematic instruction arranged with a view to fitting students for the intelligent practice of particular crafts, industries, or occupations. Courses to be recognized under this division must, as a rule, extend over at least three years, and must provide for such minimum of instruction in each year as may in each particular case be proposed by Managers and approved by the Depart-

ment. For the benefit of pupils who intend to take such a course but are not yet qualified, Managers may form a class preparatory to and distinctly related to the Division III. course with a curriculum to be approved by the Department as of sufficient breadth.

Courses may be instituted under Division III. to provide technical instruction appropriate to any crafts, industries, or occupations, approved by the Department as suitable in the particular circumstances.

Such courses may be classified under the following heads:

- (a) Commercial and literary courses.
- (b) Art and art crafts.
- (c) Engineering—civil, mechanical, electrical, mining, sanitary, etc.
- (d) Naval architecture.
- (e) Navigation.
- (f) Architecture.
- (g) Building and allied trades.
- (h) Textile industries.
- (i) Chemical industries.
- (j) Printing processes.
- (k) Women's industries.
- (l) Agriculture and rural industries.
- (m) Other suitable industries or occupations not included under any of the above heads.

Students who fulfil the requirements of Division II. will be eligible for admission to the Preparatory class.

Students who have passed successfully thru the Preparatory class or any year of a course in Division III. will be eligible for admission to the succeeding year of that course.

Students (a) over 17 years of age who are certified by His Majesty's Inspector to be qualified to benefit by the instruction; or (b) who have been more than one year in an approved Supplementary Course and have gained a Certificate of Merit; or (c) who have been two years in an approved Intermediate Course; will be eligible for admission to the first year of a Division III. course.

Students who have gained an Intermediate Certificate of the Scotch Education Department will be eligible for admission to the second year of a Division III. course.

Students who have had a Post-Intermediate course in a Secondary School, and have gained a Technical or Commercial, or Leaving Cer-

tificate, may be admitted to a third year of any Division III. course to which their certificates are relative.

Students producing satisfactory evidence of other qualifications which may be accepted by the Department as equivalent to any of those specified in the five preceding Articles will be eligible for admission to the year of the Division III. course corresponding to their qualification.

Classes in Division III. must meet not less than twice a week for at least twenty weeks, each meeting to be of not less than one hour's duration, or in the case of subjects of practical instruction, one and one-half hours.

Division IV. Auxiliary Classes. This division shall comprehend classes for instruction in physical exercises, military drill, vocal music, woodcarving, fancy needlework, elocution (if taken in connection with an English course), or such other subjects as may be recognized by the Department as suitable for grants under this division.

These classes shall be open to all pupils who are free from the obligation to attend school as required by the Education Act, but it shall be a condition of grant that the Department shall be satisfied that Managers are using all reasonable endeavor to encourage the attendance of the pupils at classes of other divisions also.

CLASSES IN THE SCHOOLS AND TEACHERS.

Continuation classes are carried on in Edinburgh in 25 schools: 6 of the schools are set apart for young women and girls; 6 for young men and boys; 10 for both sexes; and 3 for adults over 20 years of age. Classes for the completion of general elementary education are conducted in 17 of the schools. Provision is made for one or more courses of specialized instruction in each school. Courses in domestic art are organized in all schools to which girls and young women are admitted, excepting the two commercial institutes.

English courses are taught in.....	11 schools
Commercial courses in.....	22 schools
Technical courses in.....	14 schools
Art courses in.....	6 schools
Domestic courses in.....	17 schools
There are six schools in which instruction in physical exercise is given. Swimming and life-saving are taught in the four school baths belonging to the Board.	
Vocal music is taught in.....	10 schools
Wood carving in.....	3 schools
Elocution in.....	3 schools

The total number of classes in the continuation schools for the year terminating 1911 is as follows:

Division I. Classes for the completion of general elementary education.	35
Literary English classes.....	11
Commercial English classes.....	306
Technical English classes.....	74
Art classes.....	20
Domestic classes.....	288
Recreative classes.....	87
Total	821

There are 421 teachers employed in the continuation schools; 122 are trained, certificated teachers. The Board has arranged courses of lectures on the art of teaching, illustrated by practical demonstration lessons for the remaining 299 teachers.

The continuation school session extends over a period of 26 weeks, beginning about the end of September and closing about the end of March. During the last four years, the school has had a summer session of 12 weeks, beginning in April and terminating in June.

In all the schools, except those for adults, the fee is five shillings for the session, which is returned to each pupil who makes 80% of attendance and is given a satisfactory report from the head-master as to conduct and progress. Pupils who enrol for one night's attendance a week must make 90% of attendance in order to obtain the return of their fee. The classes in physical exercises are open free to all pupils of the Board's continuation classes, and to others on payment of a fee of five shillings which is returned at the close of the sessions to those who make 90% of the attendance possible for the whole session. Prizes are given for attendance and progress.

COORDINATION WITH CENTRAL INSTITUTIONS.

Reference has been made to Central Institutions which cooperate with the continuation schools. This includes the Heriot Watt College and the Edinburgh College of Art. The general principle of the scheme is that the elementary instruction in English, commercial, technical, and art subjects should be given in the continuation schools; and that students who have successfully completed a two or three years' course, as the case may be, should be granted a certificate based upon the results of class work and class examinations, as well as on attendance qualifying

them for admission to the advanced or specialized classes in the corresponding department of the Heriot Watt College or Edinburgh College of Art. The scheme for coordination, so far as technical work is concerned, is a success, but in art and commercial subjects the results have not been quite so satisfactory.

RECENT DEVELOPMENTS.

Among the important steps recently taken may be mentioned the Educational Census made by the Board in the summer of 1910, with a view to ascertaining the extent to which young persons between 14 and 18 are taking advantage of the continuation classes, and with a view to studying the groups of occupations followed by them. The formation of Advisory Committees to offer suggestions as to the courses of instruction and the equipment required for the various classes should be referred to as showing the intention of the Board to direct continuation class instruction to profitable and practical ends.

During the last two years considerable progress has been made in the provision of suitable instruction with reference to the crafts and industries practiced in the district. Special classes have been organized for plumbers, brass-finishers, metalworkers, leather-workers, tailors, plasterers, upholsterers, French-polishers, chemists, and for the higher rates of speed in shorthand, in addition to the classes which existed previous to 1909 for mechanical and electrical engineers, masons, carpenters, cabinet-makers, bakers, confectioners, printers, art craftsmen, for those engaged in commercial occupations, and for domestic training.

In connection with the new school at Tynecastle a range of 18 workshops has been erected where proper facilities will be provided for the instruction of plumbers, tinsmiths, engineers, pattern-makers, brass-finishers, moulders, cabinet-makers, tailors, upholsterers and plasterers. In the construction of the workshops the strictest economy has been observed. In order to prevent the possibility of over-lapping with the Heriot Watt College and the Edinburgh College of Art, and the consequent waste of public money, the Board have had the advice and guidance of the practical experts of these Institutions and also of some of the practical men on the Advisory Council of the Educational Information and Employment Bureau in drawing up the schemes of work and in fitting up the workshops.

QUESTIONS FOR FUTURE CONSIDERATION.

Among the questions which now claim the attention of the Board the following are worthy of note, viz:

- (1) The best means of reaching the 7,000 young persons in the city at present receiving no instruction.
- (2) The provision of more suitable classroom and workshop accommodation for adolescents.
- (3) The prevention of overlapping and waste by judicious schemes of coordination with the Central Institutions.
- (4) Increased attention to the teaching of citizenship and physical exercises.
- (5) The training of practical experts in the art of teaching.
- (6) Further cooperation with employers with a view to the institution of day continuation classes.

EDUCATIONAL INFORMATION AND EMPLOYMENT BUREAU.

In September, 1909, the Board opened an Educational Information and Employment Bureau in their offices under the direction of the Organizer of continuation classes. Since that time almost 2,500 applications for advice regarding further educational courses and suitable occupations have been dealt with. Over 1,500 pupils have made personal application to the Bureau for employment, and almost 1,200 of them have been placed in occupations for which they appear suited by natural bent and educational equipment. The services of the Bureau have been utilized by almost 600 individual employers.

The operations of the Bureau appear to have exercised a strengthening effect on the link between the day school and the continuation school classes, as is shown by the large percentage of leaving pupils who now proceed directly to the continuation classes. In order to bring home to parents the great importance of selecting suitable occupations for their children and of allowing little or no break between the day school and the continuation classes, the members of the Board now address in February of each year, meetings of leaving pupils and their parents.

COOPERATION WITH LABOR EXCHANGE.

In January, 1910, the Board of Trade opened a Labor Exchange in Edinburgh. As the Juvenile Department of the Exchange and the Board's Bureau were performing related duties, so far as the employ-

ment of young persons was concerned, it was felt that in the interest of economy and effective industrial organization a scheme of cooperation was very desirable. As the result of negotiations between the School Board and the Board of Trade, an arrangement has been made whereby the work of both departments is carried on jointly in the present office of the School Board. All young persons between 14 and 17 years of age are dealt with there.

The Labor Exchange has provided an officer to carry on the work of registration of applicants for employment and of vacancies intimated by employers. The School Board's officer continues to do the work of advising boys and girls when leaving school as to the pursuits for which they are suited and as to the opportunities which exist in the various occupations. It is also his duty as organizer of continuation classes to keep the system of further education in real touch with the industrial needs of the locality, and to supply information regarding the educational courses suitable for groups of allied trades.

ADVISORY COUNCIL—SECTIONAL COMMITTEES

The Bureau is under the charge of a standing committee of the Board consisting of five members. Associated with the committee there is an Advisory Council comprising representatives of public bodies, trade associations, employers, and educational experts. It is the duty of the Advisory Council to give advice to the Board on all matters connected with the education required for the various trades and occupations in city and on the conditions of employment. In order that the attention of each member may be concentrated on the industry with which he or she is connected, 18 Sectional Committees have been formed to deal with the following subjects, viz:

- | | |
|---------------------------|-------------------------------|
| 1. Printing. | 10. Upholstery. |
| 2. Engineering. | 11. French Polishing. |
| 3. Brassfinishers' Work. | 12. Baking and Confectionery. |
| 4. Tinsmiths' Work. | 13. Tailors' Work. |
| 5. Molding. | 14. Plasterers' Work. |
| 6. Building Construction. | 15. Art. |
| 7. Plumbers' Work. | 16. English. |
| 8. Carpentry and Joinery. | 17. Commercial Subjects. |
| 9. Cabinet-Making. | 18. Domestic Subjects. |

The duties of these Sectional Committees are as follows:

- (a) To visit the particular classes which they are chosen to deal with.
- (b) To offer suggestions to the Board as to the equipment and schemes of work of those classes, and as to further means calculated to increase the interest on the part of the workers concerned.
- (c) To make an annual report to the Board.

The work of the Sectional Committees has been carried on with much earnestness, and valuable reports have been furnished to the Board. In this way the workshop, the counting-room, and the business establishment are brought into close contact with the school, and a definite practical bent is given to the instruction.

EDUCATIONAL CENSUS.

In the summer of 1910, an educational census was taken of the children and young persons in the city of Edinburgh with a view to determining two main points: (a) the actual number of young persons for whom continuation class arrangements should be made; (b) the nature of the industries of the various districts in which these young persons are at present employed. The census was confined to houses of a rental of £130 per annum and less. It was ascertained that on June 1st, 1910, the number of young persons between 14 and 18 years of age was 14,988, and that of these 3,366 or 22.4% were attending continuation classes or other institutions for further study not including day schools; 7,674 or 51% were not taking advantage of any facilities for further study.

Calculated on the basis of the 1901 Census the total number of young persons between 14 and 17 in Edinburgh in 1910 may be stated to be 19,094, the number receiving instruction during the day 5,021, and the number attending continuation classes, central institutions, and private schools 5,758. Apparently then there were on June 1st, 1910, in round numbers, 8,000 or 43.5% of the total population between 14 and 17 who were not in attendance at either day or evening classes. Almost 1,000 of these have since been enrolled in the continuation schools.

There were 43 occupations in the city in which more than 50 workers between the ages of 14 and 18 are engaged. These important groups of industries will be carefully surveyed with a view to showing

to what extent provision has already been made in the continuation schools for giving instruction in the subjects which are directly related to them, and what further organization is required to meet the necessities of occupations still unprovided for. Valuable assistance in this connection will be given by the Sectional Committees of the Advisory Council.

When the scheme of cooperation between the Board and the Labor Exchange has been fully developed there will be issued to pupils at the close of their day-school career leaflets and pamphlets giving information about the conditions of employment, the rates of wages in the district, the general nature of the opportunities and prospects in each industry, the qualifications most required on the part of the learners or apprentices, and the technical and commercial instruction required for each occupation. One such leaflet concerning employment for girls has been published.

One is impressed by the thoroughness with which the Scotch have undertaken the work of vocational education. While the Germans have accomplished more on account of larger experience and more favorable conditions; the Scotch in Edinburgh have developed a plan that compares favorably with that of most German cities.

TO THESE SOCIALLY EFFICIENT IDEALS—THE ENRICHING OF SCHOOL LIFE WITH VOCATIONAL PURPOSE AND THE ENRICHING OF WORKING LIFE WITH EDUCATIONAL PURPOSE—THE VOCATIONAL GUIDANCE MOVEMENT ADDRESSES ITSELF.—Meyer Bloomfield:
The Vocational Guidance of Youth.



FIG. 1. THE NEWTON INDEPENDENT INDUSTRIAL SCHOOL.

THE INDEPENDENT INDUSTRIAL SCHOOL OF NEWTON, MASSACHUSETTS.

FRANK M. LEAVITT.

In the two previous articles of this series we examined the two extreme types of industrial schools.

The pre-vocational type, as illustrated by the Cleveland Elementary Industrial School, was seen to be elementary and general, and an integral part of the school system. It was found to provide for every element of liberal culture commonly included in courses of study for children of the same age, and for considerable opportunity for differentiation, and also for experimentation, on the part of the pupil, with the elements of various trades. This "trying out" process was seen to be an essential in pre-vocational schools.

The trade school, illustrated by the David Ranken, Jr., School, was found to be a "finishing school," not articulated with the school system, giving only such work as is specifically related to a given trade, and relying on the incentive to study, which the practical work gives, to supply elements of culture.

Between these two extremes are several types of schools, differing in more or less important particulars, and frequently merging one with the other, thus making it somewhat difficult to differentiate them. It will be found, however, that all types may be classified either as forming a part of the traditional school system, or as being, in a measure, separate from the system and independent of the limitations imposed by its plans of grading and promotion.

It is the purpose of this article to discuss the latter type, the "separate" industrial school, and to illustrate it by the Independent Industrial School of Newton, Massachusetts.

These schools have much in common with the pre-vocational schools inasmuch as they usually divide the time equally between practice and study, and because they attempt to include in their courses of study some work of a cultural or inspirational character, such as biography, literature, and civics.

They have two points in common with the vocational high school (a type which we shall discuss in a subsequent article); first, the work given is of a secondary type; and second, they admit children of high school *age*. The resemblance ends here. No rigid *scholastic* requirements are made for admission and the work does not lead to a high school diploma tho it sometimes duplicates portions of the high school course.

They also resemble, in part, the trade school since the industrial work is generally of a distinctly practical nature and is meant to lead directly to some trade or occupation. They also receive children two years earlier than the typical trade school.

Separate industrial schools are planned especially for boys and girls who, on reaching the end of the compulsory school period, are inclined to leave school feeling that it has nothing more to offer them since they are not seeking preparation for their life work thru higher education.

To these schools are admitted also those who have not met with marked success in the elementary school. This is well illustrated by the following figures relating to the previous schooling of the 83 pupils who had entered the Newton Independent Industrial School prior to June 1, 1911. Under the Massachusetts laws governing the state aided vocational schools, pupils are not admitted until 14 years of age, yet nine of the 83 boys were from the fifth grade or below,

21 from the sixth grade, 25 from the seventh grade, 20 from the eighth grade, six ungraded, and only two above the eighth grade. The average age on admission was fourteen years and eight months.

While schools of this type generally offer courses of three or four years' duration, it is observed that the children entering them are often desirous of taking only a short term trade course. An immediate appeal is therefore made to the vocational interests of the pupils and the industrial work is made a central and predominant factor in the school, thus providing *in the school work* that element of reality which, so apparent *in the world outside*, proves more attractive to many children than continued life within the traditional school. In some instances, where the economic needs of the pupils are most pressing, the book work is reduced to a minimum and preparation for immediate industrial service is made the most vital consideration.

As above noted, the statutes of Massachusetts foster the "separate" industrial school and there is some foundation for the opinion of the framers of the law that success could be attained only by relieving the new schools from the domination of traditional education. It is certain that such separation is most needed where the traditional schools are blind to the needs of the future industrial workers or are unsympathetic in administering such new studies as may be forced into their curriculum by pressure from without. Be that as it may, it is a fact that this separation has been maintained in many of the Massachusetts industrial schools since it is one of the requirements for state aid.

While the Newton Independent Industrial School is an excellent example of this type, an important and most significant fact should be noted at the outset. In order to avail itself, if possible, of the state aid, it has attempted from the outset to fulfill all requirements and to maintain an entire independence of school traditions. Its name gives evidence of this fact. Nevertheless, in the course of its short existence, it has been so efficiently managed that it has taken boys from the sixth grade of the elementary school and has later admitted them to the technical courses of the high school. Instead of setting up a barrier between the elementary and the high school, it has actually discovered a new pathway by which the high school may be reached. Thus, while in a sense an *independent* industrial school as its name implies, it has become an integral part of the school system. This fact will be seen with great clearness by referring to the accompanying

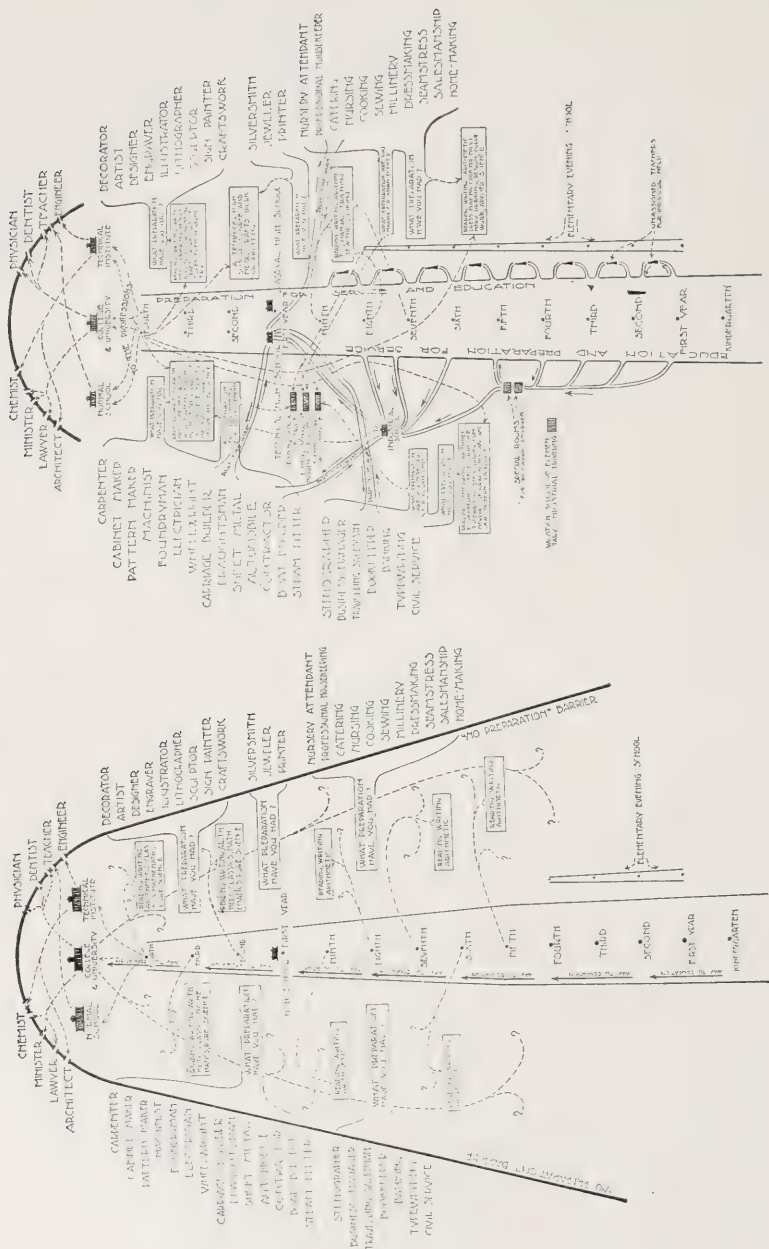


FIG. 2. THE TRANSFORMATION OF THE NEWTON SCHOOL SYSTEM. SEE NOTE AT BOTTOM OF NEXT PAGE.

chart showing the evolution of the Newton public school system, Fig. 2. This chart first appeared in the annual report of the superintendent for 1910.¹

At the close of this article we shall refer again to this question of "separation" for it is one of fundamental importance to the future of popular education.

The Newton Independent Industrial School was authorized by the city government in January, 1909, and was opened, in February of that year, in one of the grammar school buildings. In September it was moved to an abandoned, six-room, school building which it still occupies and which is shown in the illustration at the head of this article.

The school, at the beginning, consisted of only fifteen pupils and one instructor, and the work was such as could be done in one wood-working room and one classroom. From this modest beginning the school has expanded until, during the school year of 1910-11 its enrollment reached 62, and its course of study now includes the following industrial activities: carpentry, cabinet-making, pattern-making, machine-shop practice, electrical wiring and construction, sheet metal-working, and printing. The book-work or study-work include mechanical drawing, mathematics, English, commercial geography, science, history, and government.

The school is open to boys only, fourteen years of age or over, who probably would not enter the high school. It has a six hour day and a year of approximately eleven months. The course covers three years and the time is divide about equally between book-work and shop-work. A pupil is given some opportunity of trying different kinds of trade work until he finds that for which he is apparently best

¹ The left half of the diagram on the preceding page represents the Newton school system for a long period, ending about 1905. "It selected, retained and educated those who were fitted by natural endowment and interest to profit by what the school thought fit to offer, others were eliminated all along the way, and with little concern for the precious material thus forced to waste. It stood for uniformity in materials of education, in methods, and in product."

The right half of the diagram represents the Newton school system as it has been developed since 1905. This development has been inspired and directed by the idea that "it is the function of the school to educate every boy and every girl, to eliminate none, to accept all. It fits work and method to individual needs and strives to send children out of school just as individually diverse as nature designed them to be, and as the diversity of service which awaits them requires."

adapted. He is then urged to specialize in that trade and to take pride in it.

COURSES OF STUDY.

In addition to the trade activities noted above the course of study includes the following:

MECHANICAL DRAWING: This course is primarily shop drawing and machine sketching. In the latter part of the course the drawing is related directly to the trade in which the pupil is specializing. For the class in printing this includes, however, freehand drawing, lettering, design, and the study of appropriate color combinations as related to printing.

MATHEMATICS: The instruction in arithmetic, elementary algebra, and geometry is intended to give the *industrial essentials* of mathematics. Special emphasis is given to square root, proportion, mensuration, formulæ, and the use of logarithms. Free use is made of mechanics' and engineer's handbooks for formulæ and tables. Examples are taken from shopwork as far as possible.

ENGLISH: The purpose of the instruction in English is to give facility in reading and writing orders and business letters, and the taking of shop notes; to develop ability to consult sources of information along mechanical lines; and as far as possible, to cultivate an appreciation of good literature.

COMMERCIAL GEOGRAPHY: Pupils study the sources of the common materials, and the economic features of the countries of the world, trade routes, etc.

SCIENCE: The science given is related in a practical way to the shop subjects.

HISTORY: This shows the industrial and economic development of mankind from the earliest time down to the present, giving special attention to the marvellous progress during the last century, and to the industrial history of the United States. Biographies of the great leaders in science, invention, and commerce are studied and written.

GOVERNMENT: The history leads to a study of the political conditions of the present time, and to some consideration of the great problem of labor and society.

In providing for instruction in the technical phases of the work the school is committed to the policy of turning out a real product. To our subscribers who read in the November number of VOCATIONAL EDUCATION, the article on "The Commercial School



FIG. 3. THE DRAFTING ROOM.

Shop," by Superintendent Elmer H. Fish of Worcester, nothing need be said regarding the value, to the boys, of pursuing this policy. It should be recalled, however, that the boys are probably even less mature in the Newton Independent Industrial School than in the Worcester Trade School, yet the plan has met with signal success from the beginning.

There has never been a time in the history of the school when work could not be found which furnished excellent training for the boys and which, at the same time, filled a real need.

To begin with, there has been the equipment of the school itself. Our illustration of the drafting-room, Fig. 3, shows tables which were made by the boys very early in the history of the school. In the making of furniture, the re-building and installing of machinery, the making of hand tools, the wiring for electric lights, there has been wide opportunity for practice in a variety of tool processes. The industrial or trade activities of the carpenter and cabinet-maker, the pattern-maker, the tool-maker, and the electrician are here well exemplified.

In addition to making much of its own equipment the school has undertaken a great variety of work for the schools of the city generally. The making of cabinets, tables, and other articles of furniture is a common thing. One of the most pretentious projects has been the manufacture of a number of small speed lathes with friction clutches, for the Technical High School. Two of these are shown in the illustration of the machine-shop, Fig. 4. This is the machine-shop of the Independent Industrial School *not* the Technical High School. The lathes in question are a little to the right of the center of the picture.

The class in printing has had ample opportunity to be useful. Blank forms, catalogs, reports, and other pamphlets have been printed for the school department in large numbers and in an entirely satisfactory manner. An accurate account of the cash value of the work is kept by the school department and the amount is duly credited to the school.

EQUIPMENT.

It should be remembered that the school is not large and that, in the beginning, considerable variety of work is permitted the pupil. Less "classwork" is done than one commonly finds in the traditional



FIG. 4. THE MACHINE-SHOP.

manual training room. For this reason the various rooms have more often the appearance of a shop than of a school, and the equipment, in its variety and arrangement, adds to this impression.

Our illustrations perhaps show with sufficient clearness the important characteristics of the equipment but it is worth repeating that much of it has been made by the boys themselves. All of the machine tools were second-hand and have been "re-built" in the shops. The shafting was installed by the boys and all possible hand tools are manufactured in the school. This is notably the case with the equipment for the sheet metalwork for which we have no illustration, and which includes the following:

1 beading machine, 6 straight tin shears, 6 curved tin shears, 1 24 in. sheet metal cutter, 12 soldering coppers, 6 double fire-pots, and 12 two-foot rules. These were not made in the school.

The following were made by pupils:

12 riveting hammers, 6 setting hammers, 6 raising hammers, 12 planishing hammers, 12 scratch awls, 24 wooden mallets, 2 rivet-sets and headers, 6 assorted hollow punches, 12 assorted solid punches, 6 tables, 12 assorted hatchet stakes, 1 beak horn stake, 1 square stake, and 1 blow horn stake.

In addition to using the equipment in the Independent Industrial School, certain of the pupils have access to the shops of the Technical High School for a portion of their work. It is felt that the equipment in this school may just as properly be utilized for the education of these boys as if they had become members of the high school and in the traditional way.

RELATION TO THE COMMUNITY.

As previously noted, graduates of the Industrial School may become regular members of the Technical High School, but it is neither expected, nor mainly intended, that this shall be the natural or necessary result of three years' attendance in the school. After the boy has selected the industry or trade which appeals most strongly to him he is advised and influenced to perfect himself in it and to pride himself in the progress which he makes in skill, speed and intelligence in that trade.

Furthermore the school authorities seek to establish somewhat the same relation between the Industrial School and the outside world as now exists between the elementary and the secondary schools. As



FIG. 5. THE WOODWORKING SHOP.

the elementary school prepares its pupils for the high school and follows with interested care their progress in the higher institution, especially during their first year, so the Industrial school follows its graduates into their vocational life.

A pupil who has completed the three-years' course satisfactorily is given a certificate containing a clear statement of facts regarding his



FIG. 6. THE PRINT SHOP.

training and the extent of his preparation for his chosen trade. If the pupil then works for an entire year in a shop approved by the school, submitting weekly reports by himself regarding his work, and, at the close of the year, a commendable statement from his employer, he is finally given the diploma of the Independent Industrial School.

The cooperation of employers is also sought and they are urged not to employ boys from the school without this preliminary certificate or at least a written statement from the principal of the school regarding the applicant's training and ability.

TEACHERS.

The teachers have been selected with great care for it is realized that a peculiar and unusual combination of qualifications is essential for genuine success in this work. The teachers who give instruction in the trade processes are thoro mechanics of the grade corresponding to shop foremen or superintendents. They possess, in addition, sufficient general training, teaching experience, and breadth of social out-

look to enable them to rank as first-class teachers. It has been necessary to pay for this combination but Newton does not consider education to be an *expense* but rather an *investment* and this additional outlay is believed to be a *good* investment.



FIG. 7. THE ELECTRICAL ROOM.

RESULTS.

It is believed by the school authorities that the complete four-years' course (three in the school and one in the trade), will give the boy the essentials of the seventh and eighth grade work and of the first two years of the high school course, and in addition, a trade experience fully equivalent to two years of apprenticeship training. As only three years have elapsed since the establishment of the school, conclusive proof that such is indeed the case is obviously not to be had. We are of the opinion, however, that time will show this estimate to be conservative.

On June 1, 1911, statistics showed that the school had retained 69.6 per cent. of its total enrolment to date. This, of course, is only broadly indicative of the hold which the course has on the boys and can not be used for purposes of comparison since admissions to the classes are made irregularly and in accordance with individual needs.

SOME OBVIOUS LESSONS.

Such are the general organization, methods, and results of the Independent Industrial School. The reasons originally advanced for establishing the school are those with which we have now become familiar, but in this case they gain peculiar significance. If there are any cities in the United States which do not need a school of this type, Newton, a wealthy, residential city might safely be said to be one of these. Dr. Spaulding, the superintendent, however, has taken an advanced position in this matter. It is his opinion that, if there be but ten boys in the city of Newton who need this particular type of education, the need of each one of these ten is as insistent and as worthy the concern of the school committee as if he were one of ten thousand such boys.

It is, we think, a fair question whether we have here anything which might not very properly be considered a logical and necessary function of any progressive public school system. In fact we might go further and affirm that even this most successful "separate" industrial school should take one more step in advance. Strangely enough this further step it would undoubtedly be glad to take were it not for the limitations imposed upon it, not by traditional standards of education, but by the requirements of the Massachusetts statutes which place the minimum age limit at 14 years.

M. W. Murray, the director of the manual training and industrial work of the Newton Public Schools, and at present Special Agent of the State Board of Education, says, in a published article;¹

The largest number who dropped out are those classed under the head of "delinquent"..... The great majority of those classed under "delinquent" were boys from sixteen to nineteen years old, who had cultivated habits of idleness, profanity, smoking, etc. The experience with this group seems to show that to deal successfully with boys of the type they should be taken when they are about fourteen years old, *preferably younger*, before bad habits have become fixed.

Are these schools dealing successfully with a group which is not being reached by the other schools? It is the opinion of the principals and teachers of the elementary schools in Newton that these pupils would not be in any school if they were not attending the industrial school; in fact, in almost every case the boy was about to leave the elementary or high school before he entered the industrial school, and, in some cases, actually had left. This means that the school is reaching only those

¹The eleventh Year Book of the National Society for the Study of Education.

who were hopelessly lost to the other school. It is not doing all that it should until it reaches out into the grades and takes boys *a year or two before the point of leaving*. . . .

The signal success of the Newton Independent Industrial School teaches not alone the fact that schools of its type are needed and may be extremely efficient but perhaps even more strongly does it emphasize the fact that, to be most effective, they must be, like the pre-vocational schools, a part of the elementary grades below, and be vitally connected with the high school, or at least some type of "secondary" school above. It would be difficult indeed, in the light of Mr. Murray's experience, to see why state aid should be given to the education of certain types of boys *after* fourteen and be withheld from them *before* fourteen when, as Mr. Murray clearly shows, special training would frequently be much more effective when given earlier.

It is a sad commentary on our wisdom, or lack of it, to reflect that reform schools, organized on much the same plan as our industrial schools, frequently receive boys as young as ten years, but it is at least encouraging to recall that these reform schools, like the industrial schools often succeed where the typical public school fails.

It is our firm conviction that the present public school system is capable of such development, thru the extension of pre-vocational work and the enlargement of the function of the secondary school, that it can administer as *one* system, under efficient and progressive management, the education of all our children. The "separate" industrial school would be *separate* no longer and would gain in efficiency, rather than lose, by its more vital articulation. We believe that the very success of the Newton Independent Industrial School, and we know of none more successful, justifies this conclusion.

I WOULD LIKE TO IMPRESS THE IMPORTANCE OF AN EDUCATION IN COMMON THINGS FOR COMMON PEOPLE, AS OPPOSED TO THE EXCEPTIONAL AND THE REMOTE AND THE EXTRAORDINARY. A GREAT NATION IS NOT THE OUTGROWTH OF A FEW OF GENIUS, BUT THE SUPERLATIVE WORTH OF A GREAT COMMON PEOPLE. UNLESS THE MAIN OBJECT OF ALL EDUCATION FOR THE MASSES IS THE MAKING OF A GREAT COMMON PEOPLE, WE SHALL FAIL. IF OUR INSTITUTIONS ARE TO BE PRESERVED WE MUST MAKE GREATNESS COMMON.—S. A. Knapp.

VOCATIONAL TRAINING—TO WHAT EXTENT JUSTIFIABLE IN PUBLIC SCHOOLS?

CHARLES A. BENNETT.

IN business the amount of money that may profitably be spent in advertising depends upon the financial returns from such advertising. Whether a business house can afford to spend one thousand or one hundred thousand dollars in educating the public up to its standard of quality and taste depends upon the returns it can get in sales which are the result of such educational expenditure. There is no limit to the justifiable expenditure so long as the returns come in in sufficient ratio to the capital invested in this way. Likewise the question of how much the business house can afford to spend in the special education of salesmen depends upon the returns in sales in proportion to the outlay for education and wages.

This same principle holds true in public education. Any expenditure is justifiable so long as the returns are sufficient in kind, quality, and amount. In this case, however, the returns are not in terms of dollars for the business corporation, or salary for the individual, but in terms of benefits realizable by all the people of the city, the state, the nation—by the American public. The late General Francis A. Walker once said that the demand for public schools "has been purely socialistic in character, springing out of a conviction that the state would be stronger, and the individual members of the state would be richer and happier and better if power and discretion in this matter of education of children were taken away from the family and lodged with the government." It is of the greatest concern to the public how the children of the nation are educated, and the nation or the state is justified in adopting any reasonable measures that will produce efficient citizens.

The more one studies the history of public schools the more it becomes clear to him that the great purpose of such schools is fundamentally vocational. We are aware of the fact that it is customary to speak of the aim of the public schools as being, first, cultural, and incidentally vocational. From the standpoint of the state, however, the former may be regarded as incidental to the latter. General educa-

tion—at least, that part of it that is given during the first six years, which we call elementary education is, so far as the state is concerned, but the beginning of an education, the whole of which is the making of efficient social units. And an efficient unit of society must have a vocation, and to be most efficient that unit must be trained in some way—either in public schools or at private expense or thru vocational experience or by means of a combination of these. Elementary education is, then, from this point of view, the foundation of a structure which is essentially vocational. And it is, or ought to be, just as fundamental to success in the vocations connected with the industries as with the professions, and, in fact, far more so, if there must be a difference, because of the greatness of the majority of students who go into the industries. But whether we regard elementary education as chiefly a means to vocational ends or not, the fact of a vocational end in public education as a whole seems evident.

The economic value of education certainly is not sufficiently appreciated in America. We believe, in general, that education makes a man a better member of society, but we do not believe it in particular. We realize that an educated man has greater possibilities of making himself useful, but we do not see clearly the economy of educating every man to the point of making him the most efficient possible social unit. As some one has said, we believe in educating corn until it contains the highest possible proportion of the desired elements; we believe in breeding horses and cattle and hogs and poultry; but we have not yet come to realize that educating men is just as profitable, provided, of course, that the education is in the direction of giving the best possible social results. We seem to be a long way from an appreciation of the full value of a healthy, efficient, happy human being. Perhaps the cultivation of such beings is to be the great work of the twentieth century. If so, vocational education is going to be a big factor in accomplishing the desired result.

RELATION OF VOCATIONAL TO CULTURAL.

Greater emphasis on the vocational elements in education need not cause any sacrifice in the total cultural effect. On the contrary it will tend to raise the general average of culture, (a) because it will keep pupils in school longer, and (b) because the vocation may, for many students, become the most effective focal center around which a broad

education may be gathered. There are two roads to a broad culture—one by way of a course that is general from beginning to end, the other by a narrower, vocational course which, if pursued long enough, is bound to lead out into paths covering the broad field. Dr. Kerchensteiner of Munich, when in conference with the Illinois Educational Commission in Chicago, indicated that it was his belief that of the two roads the latter was the best. It is not in harmony with the curricula of our American schools, but it is in harmony with one of the fundamental laws of our educational psychology. It possesses the advantage of building upon natural interests, and in addition to this, it insures getting to some definite end which is socially worth while. It would seem that the carrying out of this theory in the schools of Munich is striking a new note in educational method. Herbart would make history the focal center of the curriculum; Colonel Parker would give that place to geography; but it has remained for Dr. Kerchensteiner, with his social and pedagogical insight and his rare statesmanship, to make the vocation of the individual the focal center for his education, thereby elevating the vocation, while at the same time leading the student in the most natural possible way out into broad fields of knowledge and culture. Such a program is not a study of the humanities with humanity left out; on the contrary, it is the vital touch from beginning to end with the work and thoughts, the aspirations and the victories, of human experience. While making a student, it produces also a man—an efficient social unit. The best vocational education, then, is also cultural, and the best cultural education may come thru a training that is fundamentally vocational.

Coming now to the question before us, we may say that in so far as vocational education is economically profitable to a city, state, or nation, it is justifiable, but as a matter of course, it should not take the place of any fundamental education that is more profitable.

The nation is justified in training a few military leaders at West Point and Annapolis because the welfare of all the people of the nation, in time of war, depends upon the knowledge and leadership of these few experts. The nation is justified in educating chemists and biologists to test foods and prevent the spread of disease, also to train meteorologists to prognosticate concerning the weather, because all the people benefit directly or indirectly by their work. By the same token the state is justified in educating every man to his highest efficiency in his chosen occupation, provided that in the pursuit of that occupation he serves

the community in a beneficial way. It is not the function of the state to educate pick-pockets and hold-up men, boodlers, yellow-journalists, and anarchists. Indeed we should do everything possible to eliminate the kind of vocational training that produces these in our midst. They are a very dangerous by-product of our social system, and may be, in part, at least, the result of our failure to give vocational guidance and adequate vocational training in the schools.

“MADE IN GERMANY.”

For a striking illustration of the value of vocational education to a nation, we may turn to Germany:

Years ago English manufacturers were bothered by the importation of cheap goods from Germany. As England had no protective tariff to prevent such damage to her markets she resorted to an ingenious device; passing a law that all goods coming from Germany should be marked “Made in Germany.” The aim in this act was to create a sentiment against such goods, and to warn every English buyer against the inferior imported articles that were threatening to undermine certain English industries. “Made in Germany” was thus intended to signify inferiority.

To an aspiring commercial nation this was a severe blow. It was in fact humiliating; but it was accepted as a challenge. Germany set about to turn the trick back upon England, and quietly developed her wonderful system of vocational schools and compulsory industrial continuation schools. Her scientists and artists multiplied and focused their efforts upon industry. The quality of her goods improved steadily until today the phrase “Made in Germany” stands for a substantial quality and artistic finish that command the attention of the markets of the world. In many instances German products have crowded out English goods.

In January, 1899, Germany’s mastery of one of England’s greatest industries had enabled her to produce that splendid steamship, “Kaiser Wilhelm der Grosse.” This great vessel, perfect in every detail, had just crossed the Atlantic, making the swiftest passage of any vessel. With glowing pride in this achievement the captain painted on the side of his vessel, in great letters, the legend, “Made in Germany” and triumphantly sailed up the Solent to the port of Southampton. This was a fine bit of retaliation, and it was appreciated.

After relating this incident to a body of students, J. H. Reynolds, director of the Municipal Technical School at Manchester said, "The efficient cause for all I have been saying about Germany is her schools." Germany believes that education pays because it helps men to become more efficient and she believes in making it compulsory because every worker should have a chance to rise to his highest efficiency, not only for his own sake but for the sake of the nation.

Vocational training is justifiable in the public schools to such an extent as will be effective and economical in producing efficient citizens.

SCHOOL LIFE SHOULD ENABLE A BOY TO SAY, "I CAN." IN THE HIGHER INSTITUTIONS OF LEARNING, WHERE FORMERLY STUDENTS LISTENED TO LECTURES BY THE HOUR, DOING NOTHING, THEY NOW SPEND THEIR TIME IN LABORATORY WORK. SO THE ELEMENTS OF MANY TRADES SHOULD BE BROUGHT INTO THE ELEMENTARY SCHOOLS—NOT TO TRAIN FOR A PARTICULAR CALLING, BUT TO TRAIN AND DEVELOP THE MIND IN A BROADER SENSE. THIS WILL COST A GREAT DEAL OF MONEY, FOR NO EDUCATION IS SO CHEAP AS BOOK EDUCATION. GET THE CHILDREN TO WORK BECAUSE OF THEIR INTEREST IN WORK. THE OLD IDEA THAT ALL THAT THE CHILDREN GOT OUT OF WORK WAS DISCIPLINE IS, I AM HAPPY TO SAY, PASSING AWAY. VOCATIONAL GUIDANCE MUST BE DEVELOPED ON A LARGE SCALE. IT IS NOT NEW. BENJAMIN FRANKLIN'S FATHER TOOK HIM AROUND TO THE DIFFERENT INDUSTRIES OF BOSTON AND ASKED HIM WHAT HE LIKED BEST. HE CHOSE THE PRINTER'S TRADE AT THE AGE OF ELEVEN—A FORTUNATE THING FOR HIM AND FOR OTHERS. SOMETHING OF THIS KIND MUST BE DONE IN THIS PLAN OF VOCATIONAL GUIDANCE.—Ex-President Chas. W. Eliot, Harvard University.

PHILIPPINE SCHOOL OF ARTS AND TRADES.

W. W. MARQUARDT.

A DECADE ago, the son of well to do Filipino parents felt no inclination to take up any occupation which required manual labor or the soiling of his hands and clothes. His tastes lay rather with the study of Latin and philosophy, his pastimes consisted in school processions and evening promenades, and his ambitions centered upon a government clerkship. In fact, the young man had a positive distaste for anything which might result in soiling his clothing or disturbing his personal composure. At the same time the poor boy could see nothing ahead of him except following the occupation of his father, leading the same dull life, and performing his tasks under the same rude conditions.

The period between that time and the present has witnessed a great change in the inclinations of the boy who can afford to choose his own calling and also of the boy whose opportunity must be created for him. In the short period of ten years the idea of a training in a school devoted to the arts and trades has met with such a response among the young men of the Islands that technical schools have sprung up in all parts of the Archipelago and the Philippines now boast of a trade school whose attendance is not exceeded in size by any strictly day trade school for boys in the United States, and whose corps of teachers, equipment, and curriculum will bear favorable comparison with the leading institutions of the same kind in our own country.

In 1889, nine years before American occupation, the Escuela de Artes y Oficios (School of Arts and Trades) was established in Manila under the Spanish regime. This school had at one time a paper enrolment of 1,763 pupils with attendance unknown. Courses were given in printing, carpentry, carving, masonry, ceramics, blacksmithing, shoemaking, tinsmithing, wheelwrighting, and commercial branches. At the time of American occupation, the school was located in its own building, now remodeled and occupied by the Bureau of Printing, but the enthusiasm connected with its inception had waned and much of the enrolment and many of the courses were on paper only, and before the days of American occupation the school was closed.

In 1901, when the civil government under Governor William H. Taft succeeded the military government under General McArthur the first American teachers in the Bureau of Education were already in Manila. The organic act providing for civil government made pro-

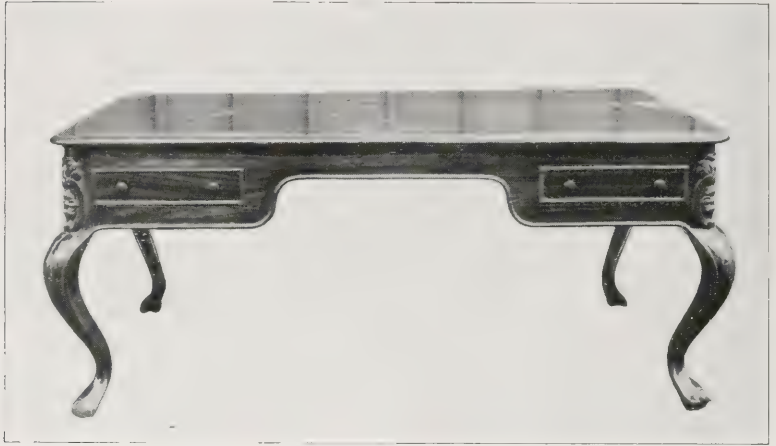


FIG. 1. FROM THE CABINET-MAKING SHOP.

visions for the Philippine School of Arts and Trades. The Philippine School of Commerce was established in 1904 and the College of Fine Arts in 1908. By these changes, the work formerly carried on by the Escuela de Artes y Oficios in an inadequate manner is now cared for by the Bureau of Printing, the Philippine School of Arts and Trades, the Philippine School of Commerce, and the College of Fine Arts, the last three institutions averaging five hundred students each.

BUILDINGS AND EQUIPMENT.

It is with the Philippine School of Arts and Trades, however, that this article is mainly concerned. From 1901 to 1906 it was housed in temporary exposition buildings. Since that time it has occupied four of the city shops to which it has been necessary, from time to time, to add four more frame buildings erected by the pupils themselves. Further development in the present plant is impossible. A larger site has been secured and two hundred thousand dollars appropriated for the new buildings. The plans are near completion and advertising

for proposals will soon be made. The new plant will provide accommodations for six hundred day pupils and three hundred night pupils. All of the buildings will be constructed of reinforced concrete. An auditorium, open air gymnasium, lockers and baths, rest rooms, janitors' quarters, school restaurant, library, sales exhibit room, dry-kilns, and lumber sheds will be features of the new group of buildings.



FIG. 2. PRODUCED IN THE WOODWORKING SHOPS.

tors' quarters, school restaurant, library, sales exhibit room, dry-kilns, and lumber sheds will be features of the new group of buildings.

The number of courses has gradually increased from two in iron and woodwork to nine including carpentry, machine-shop practice, blacksmithing, wheelwrighting, automobile repair, ceramics, drafting, preparatory engineering, and normal industrial work. The attendance has increased from a mere handful of pupils to more than five hundred. The entrance requirement has been increased from practically nothing but an age limit to the equivalent of the sixth grade in the United States. The academic work has gradually expanded from the merest rudiments of English and arithmetic to the completion of a stiff high school course. The standard of the work in all departments has been steadily raised until the Civil Service Bureau has recognized the thoroness of the work by making the graduates of the normal industrial course eligible to appointment as government teachers without examination. The ambition of the Filipinos to attend the school has been so aroused that over three hundred pupils are turned away annually for lack of accommodations, whereas formerly every possible expedient had to be resorted to in order to secure enough pupils to fill

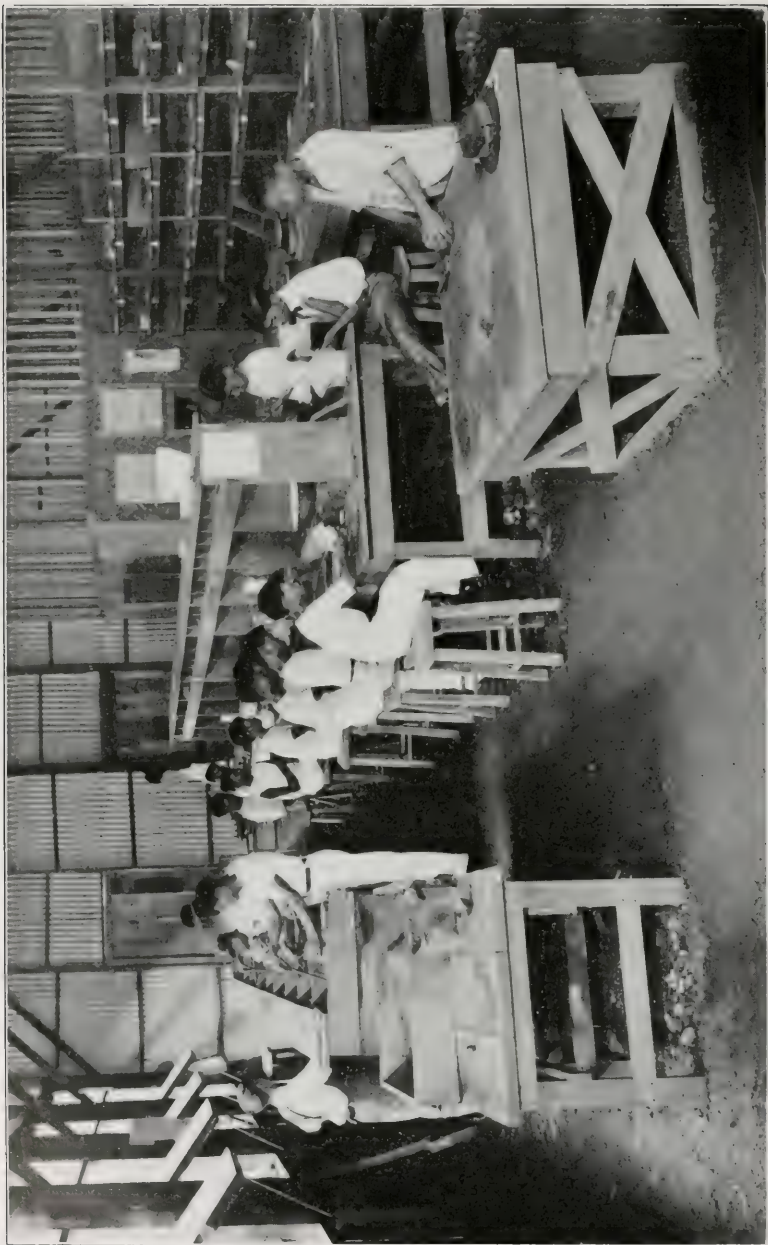


FIG. 3. THE CERAMICS SHOP.

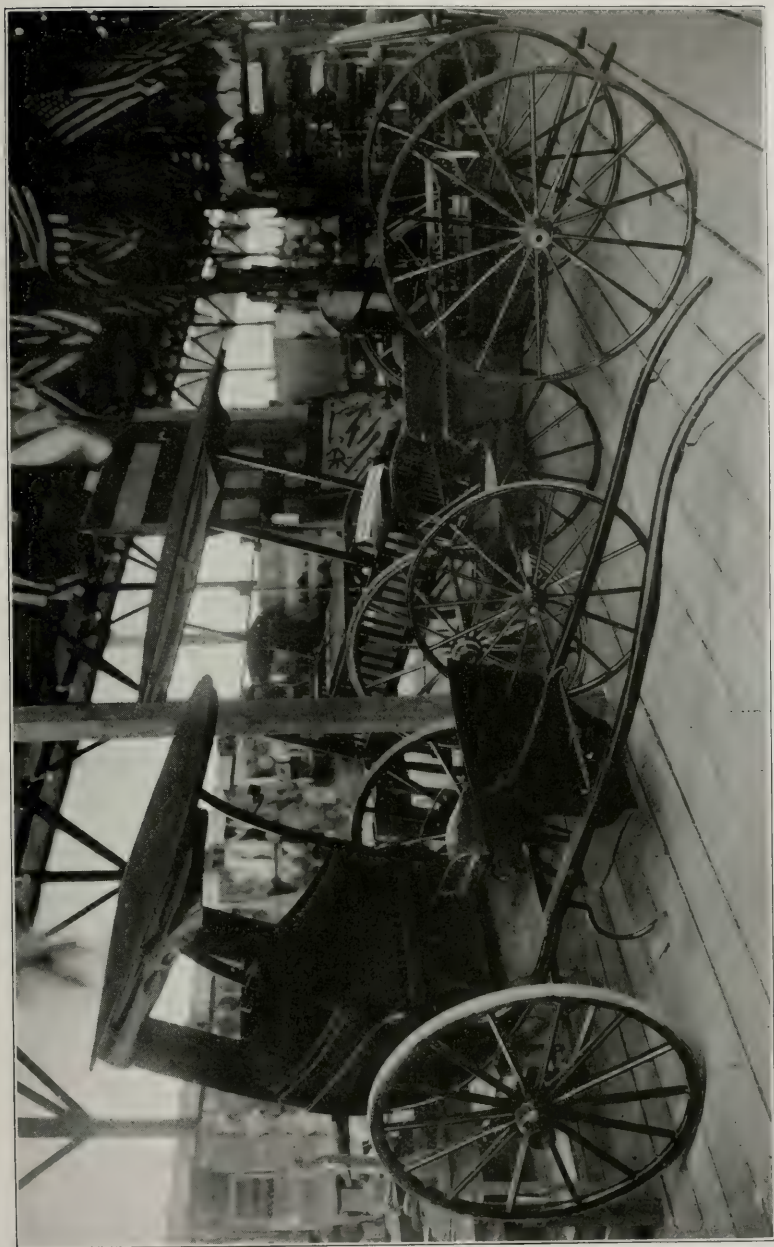


FIG. 4. VEHICLES MADE IN THE SHOPS.

a few classes. In the early days it was considered a disgrace to perform any kind of manual labor and it was a common sight to see pupils of even the middle classes coming to school with servants carrying their textbooks or tools to be used in class work. Now the black-

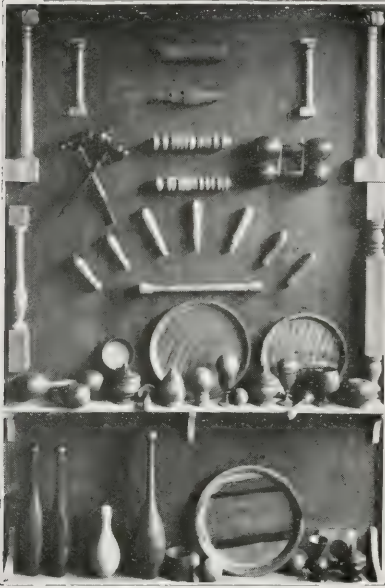


FIG. 5. WOOD-TURNING.

smith shop is the first to be filled (and blacksmithing in a tropical country is not a sinecure), sons of prominent Filipinos who have already received the bachelor's degree from the Spanish colleges are beginning to enter the school in order to get the practical shopwork, and the pupils are taking a pride in doing their work well instead of being ashamed of soiling their hands.

No definite age requirement for admission is made. The average entrance age is fifteen and only applicants of good physical development are admitted. The minimum academic requirement is the ability to read and speak English, to solve problems in simple fractions, and a general knowledge of geography. All courses

except the short course for chauffeurs are four years in length. The school day consists of six hours, of which three are spent in shopwork and three in academic subjects and drawing. The advanced classes have four years in higher mathematics, one year in business forms, and one in estimating. The completion of the advanced work is accepted for entrance to the Philippine University. Certificates are issued to pupils who have satisfactorily completed a prescribed shop course while those who make the required advancement in academic work as well are granted diplomas.

The academic instructors are all college graduates. The heads of the shops are Americans who have mastered their trades, assisted by native graduates of the school. The shop classes average thirteen pupils to an instructor thus permitting close personal supervision.

One of the most interesting phases of the school is the amount of commercial work which is done not only for various branches of the government but also for private individuals. Last year the returns from this work amounted to over \$17,000. This not only paid for all materials and supplies consumed in the school but also allowed the

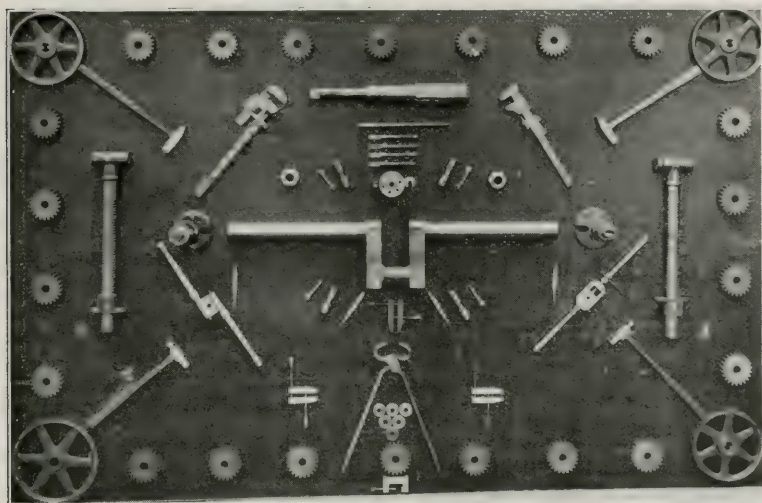


FIG. 6. FROM THE MACHINE SHOP.

employment of a great deal of student labor performed out of regular hours and during vacation periods, thus enabling many of the students to partially pay their expenses while attending school.

The first year's work in all shops is confined to carefully graded exercises made from blueprints. Even in this work, practical exercises, of value as finished products, are given preference over exercises of theoretical value and of doubtful applicability to real work.

COMMERCIAL WORK IN THE SHOPS.

After the first year's work, the pupils are advanced in commercial work as rapidly as possible. Orders for a large number of single articles are not taken and as a result the great bulk of the commercial work requires special designing, thus necessitating a great deal of preliminary work in the drafting department and preventing the pos-

sibility of a pupil's having work which can be performed in a purely mechanical manner without continued mental alertness. Two recent orders show the nature of the commercial work performed.

The following furniture was made by the pupils for the Deaf and Blind School last August: one kindergarten table, two chairs for children, eight school desks, two dining tables, twelve wash-stands, two

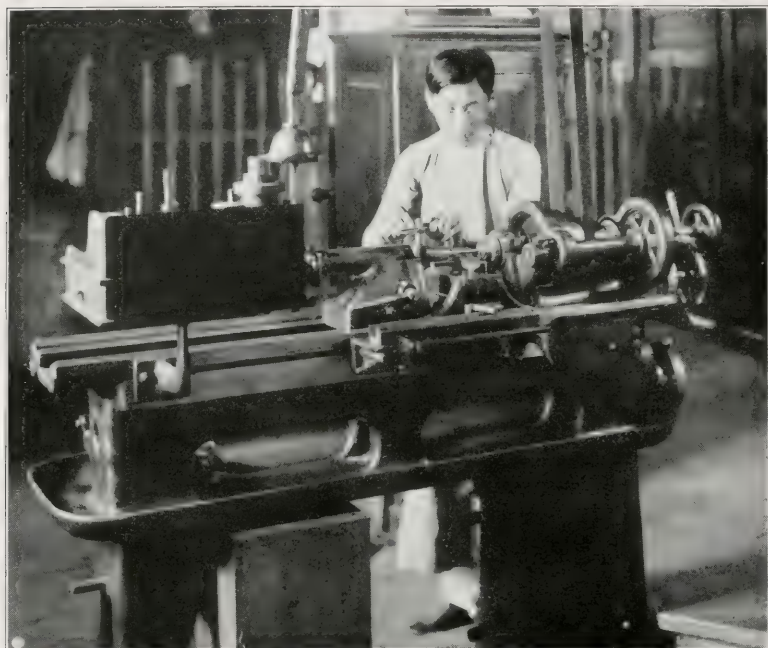


FIG. 7. A CORNER OF THE MACHINE SHOP.

hatracks, five iron beds, and two boards for weaving. The following order is now being executed in the blacksmith and machine-shops: one one-cylinder crankshaft, two two-cylinder crankshafts, one four-cylinder crankshaft, twelve connecting rods, twenty valves and stems, six cam shafts, eighty-eight steel studs, twenty washers, ten wrist pins, and two bronze gears.

Many schools decry all commercial work altho not one but points with pride to every piece of practical work done by its pupils. Altho a mooted question in the United States, the value of commercial work

in the schools is not questioned in the Islands. An American trade-school boy learns most of his trade after leaving school while a Filipino boy, unless he comes from two or three of the largest cities, must depend upon what he has learned in school, owing to the low state of mechanical development and the paucity of skilled mechanics in the provinces.

The American boy learns modern shop organization and business practice when he gets out into the world but the Filipino boy with but few exceptions has no such opportunity and it is for this reason mainly that an accurate cost accounting system has been introduced into the school. For all commercial jobs work orders are made out, labor is reported on daily time slips, materials are issued only by the store-keeper on properly executed requisitions, and tools are checked in and out by pupil tool keepers. Altho emphasis is laid strongly upon commercial work and many phases of modern shop organization are maintained, yet the use of carefully worked out exercises in the first year, the judicious intermingling of class and individual exercises, and the correlation of the drawing and academic branches with the shopwork, make a real educational institution and not a factory with its usual attendant evils.

In arithmetic, stress is laid upon practical problems which are submitted by the shop instructors, graded by the academic teachers, and taught either in lieu of or supplementary to the regular texts. The problems cover various phases of all trades taught in the school, deal almost exclusively with articles and affairs pertaining to local conditions, and make use of current market prices and measures. In language work, phrases, sentences, paragraphs, and themes dealing with shop tools, materials, and experience are encouraged. In addition to the common words found in the regular reading texts, a spelling list of all shop tools, materials, and equipment used in each trade has been compiled and made an essential part of the curriculum. In reading, emphasis is placed upon literature dealing with industrial subjects, with the purpose not only of widening the pupil's practical knowledge of the trades but also of inculcating ideals of the dignity of labor. Current newspapers and magazines are read in class so as to stimulate the reading habit and to enable the pupils to grasp the meaning of articles written in what is, to them, a foreign language. In civil government, the classes review their work by organizing school councils, provincial boards, and insular assemblies.

SHOP DRAWING.

The drawing, after a few weeks, is differentiated for each shop. Only so much of geometrical drawing is given as can be applied to shopwork. Free hand sketching and the making of working drawings are accentuated. Especial attention is given to the making of designs which are later executed in the shops.

Methods of teaching differ more in vocational schools than in any others but the final test of the value of a school is measured by the usefulness of its graduates. Altho the Philippine School of Arts and Trades is a young school in an old country, and notwithstanding the fact that its beginnings were very crude, yet its influence has already been felt in the life of the Islands. Its graduates have gone out to teach wood and iron work not only to all of the civilized tribes but also to the savage Igorrotes in the mountains of Luzon and the primitive Manobos of Mindanao. Its former pupils are found in great numbers in the machine-shops of both the Insular and the Federal governments. The standing of the graduates in the community has been well expressed by the head of one of the largest commercial firms in Manila who stated that he preferred to try out trade school pupils for all vacant positions because "they have learned to work, to obey orders, to be accurate, and to be thoughtful."

THE END OF ALL SCHOOLS—HIGH AND LOW—
MUST BE LIFE OR PUBLIC EDUCATION WILL FAIL,
AND THE FABRIC OF DEMOCRACY RESTS UPON EDU-
CATION. TO AIM AT A CULTURAL TARGET AND HIT
IT ONCE IN A THOUSAND TIMES WITH A WASTE OF
THE OTHER SHOTS, IS FOLLY. WE MAY WITH PRO-
PRIETY AND GOOD SENSE KEEP ALL THAT IS CUL-
TURAL IN OUR EDUCATIONAL SYSTEM. THERE IS
ALWAYS NEED OF IT. BUT IN KEEPING THE CUL-
TURAL PART OF OUR EDUCATION, WE MUST PROVIDE
ALSO FOR THE PRACTICAL, THE VOCATIONAL.—Wil-
liam Allen White.

TRADE INSTRUCTION VERSUS INDUSTRIAL EDUCATION FROM THE POINT OF VIEW OF A PRACTICAL TRADE UNIONIST.

E. GEORGE LINDSTROM.

THE new age emphasizes the education of the whole child. It insists that equal effort at any worthy study produces equal intellectual capacity. German and Spanish, the new education teaches us, are equal in value as studies to Latin and Greek. Art, formerly tabooed, has a place in every modern curriculum. It was therefore to be expected that schools for hand training would result from this modern point of view, so that in many public school systems courses in manual training have been introduced into the high schools, and even into the grammar schools. This condition gives to the men engaged in modern industry a new and vital problem.

Trade schools and schools for industrial education, while there is a vast difference between the two, are the greatest and most vital problems facing the industrial world today, and they must be grappled with in an intelligent and sane manner. Only after thoro investigation and systematic procedure can the desired results be finally obtained. The education must be thoro, teaching principles rather than rules, showing the student the "reason why" of good work, rather than giving examples of it.

TWO TYPES OF SCHOOL.

First, let me dwell briefly on the difference between trade schools and schools for industrial education, before I say more from a union man's standpoint. To elucidate the distinction between the two types of training, permit me to tell of a certain trade school for printers in New York City fostered by a private corporation, and a school in Chicago for the industrial education of printers, fostered by the International Typographical Union.

While in New York City I was fortunate in having a number of friends associated with a printing trade school, so that I had an opportunity to become fairly well acquainted with its policy, its methods, and its output. To be more explicit I will designate it as a linotype school. Further, let me say, there are numerous schools of this kind, and from what I could judge by the finished product they proved a sad failure, not taking into account the pecuniary loss to the student. The well written advertisements sound beautiful to the ambitious lad, and he is apt to fall an easy prey.

This was the plan of action. The tuition was \$60 on the instalment plan, and the instruction was to continue for a period of six weeks. At the end of this time if the student did not feel competent, he had the privilege of remaining a little longer. Six weeks of solid practice may be considered ample time for a man of average intelligence; but, mark you, there was no stipulation in the advertisement as to how much time was to be spent in actual practice. I found the "school" contained but six linotype machines. I stood amazed, but soon found the key to the situation. The young men were placed upon a schedule of four hours a day. In the twenty-four hours six students were accommodated on each machine; so that with six machines, thirty-six students were cared for. The four hours were not given at any one time, but were split up to accommodate other students between times. I consider myself enough of a judge to know that a trade school conducted along these lines is a success only from the financial point of view of the managers.

It cannot be denied that many of the trade schools in this country are not conducted on broad lines; that is, for the interest and welfare of the young man. They look rather to the interests of the capitalist and the employer who, in time of trouble, draft their students, half-trained men and boys, to take strikers' jobs, thus prolonging strife.

In contrast to such conditions as these, let me call your attention to the course of instruction so successfully carried on in Chicago under the jurisdiction of the International Typographical Union, in which the pecuniary matter is a secondary consideration.

The Typographical Union believes, and rightly too, that printers are as capable and intelligent a body of men as any class in society, and that if given half a chance they are capable of producing workmanship superior to anything that can be done under the supervision of commercial artists not acquainted with the limitations and intricacies of

printing material. Upon this ground the Union has taken a broad survey of the situation and is determined that in their efforts for improvement every opportunity should be afforded the young men and women in the industry who have been lax or have suffered from lack of opportunity in their apprenticeship. Therefore, a commission was appointed, and it subsequently decided upon a correspondence course, and in so doing determined that the lessons should be sufficiently comprehensive to embrace those subjects that it is almost impossible to learn in the printing office.

A course was devised whereby the principles underlying first-class typography could be taught. The instruction is not wholly theoretical, for the students are required to do practical work in the shop. Drilled in these principles, the student stands squarely on his own feet. He does not follow the style of this or the other artist printer; he applies the principles to the work, and produces a job possessing individuality.

The nucleus for this school was made at the Hot Springs, Colorado, convention, and it is now in perfect operation. The work is criticized by experts who give individual attention to each student's work, and at the end of the thirty-seventh lesson the student is qualified, or should be, to give advice on technical matters at any time. Further, prizes are given for completing the course, ranging from \$5 upward.

During the past two and one-half years nearly eighteen hundred pupils have been enrolled. Thru the generosity of the Union, which spends from \$8,000 to \$10,000 a year in supporting the course, it is sold for less than cost, and within the reach of all printers desiring it. In speaking of the course, an English-born student says it excels the British seven-year apprentice system.

The manufacturers criticize the prevailing trade schools as being schools with shops attached, whereas they should be the reverse. Instead of being conducted by professional school men and dominated by their ideas they should be managed by manufacturers, and the teachers should be practical mechanics giving instruction in the trade as it must be practiced. The distinction must be sharply made: schools for industrial training are those in which the practical is supplemented by the theoretical, while trade schools make the practical the chief end and aim, neglecting the theoretical. Hitherto the adjustment of these two extremes of educational ideals has not been made.

THE INTERESTS DEMANDING INDUSTRIAL EDUCATION.

In a recent periodical I find these sentiments which are vital to the question under discussion:

Three elements will be found in the community, urging from different directions the introduction of industrial training; the manufacturer who sees commercial supremacy passing from the hands of Americans to technically trained nations; the educator who has begun to realize the inherent defects of an exclusively bookish school; and the workers themselves who are demanding an education suitable to their economic needs, but so safeguarded as not to menace the advantages gained thru organization.

The main reason why trade education is demanded for old as well as young is due to the inefficient apprenticeship system. The manufacturer can not be expected to run his institution to teach trades, nor can he be justly criticized for specializing when one takes into consideration the fact that he is working to a very definite end—the output. Under these adverse conditions it is extremely difficult for a young man to master a trade in the allotted space of time. He becomes part of a particular machine that takes him time to learn; he turns out a good product. He becomes ambitious and desires to broaden his scope, but the foreman does not permit him to leave his machine because it takes time to learn another. In many cases the ambitious lad looks for a new position in the hope of being able to learn more, and so he goes from one shop to another, “barnstorming,” or “stealing” his trade.

Comparing the prospects of the boy who learns his trade in the shop, and the boy who learns it in the trade school, it is plainly to be seen that the former reaches a certain wage and does not get beyond that, while the latter continues to develop his capacity indefinitely.

There is no question that technical work in the public elementary and high schools has proven inadequate from an industrial point of view. They have not had the teachers. It is quite impossible for a young man or a young woman to teach the rudiments of trades from the fact that they have not learned to master the technicalities which are bound to arise in any shop. It is an easy matter to teach theory, to teach one to familiarize himself with the technical terms; but unless the instructor has the shop in which to work out and demonstrate his theories, or let the students work them out for themselves, little success or benefit can be derived. Manual training classes, which encourage the student to work at various branches until he is satisfied he is fitted to follow

some particular vocation, are the only benefit that can be obtained from such an institution.

A young man who had spent considerable time in his father's furniture factory during vacation, returned to his manual training class in the high school, where a young woman teacher was endeavoring to demonstrate some points in the industry. The young man had had some excellent instruction in the factory, and when the teacher insisted upon his doing the work her way, he became disgusted and left the class. The plan as worked out in the Fitchburg high school is correct in principle. There the school teaches the theory, and sends the boys into the shop for actual training. This combination comes the nearest to an ideal trade education.

When one takes into consideration the possibilities of a student in a manual training school preparing himself, say, for the wood industry, such as a furniture factory, he finds a problem before him. The boy who spends his time studying the technical sides, devoting much time to designing and working by hand at the bench, is not qualified for factory work by reason of the fact that the methods do not correspond with those of the factory. Therefore, in most cases, manual training only places him in the position to determine which course he shall follow. The boy who has discovered by intuition the kind of work for which he is cut out; who applies all his energies and talents to the task, will be greatly benefited in a manual training school. Here is where he lays the foundation for the future, and here is the place where he learns the first rudiments of the trade and the proper handling of tools; and when he goes into the shop to take up his apprenticeship, he lays out his course of action intelligently, and applies himself to study as well as to the actual working out of the practical and theoretical points pertaining thereto.

THE ATTITUDE OF ORGANIZED LABOR.

Now, what is the attitude of the trade unionist toward all this? The attitude of the wage earner toward industrial education is not clearly defined. He is not indifferent to the importance of the subject, neither is he antagonistic. He desires to know and understand what direction this movement takes, and how it may affect his material interests, before he comes out in unqualified approval of it. If he is an organized worker, as a large proportion of skilled mechanics are,

he has found that employers, many times during labor disputes, have used trade schools as recruiting stations for strike breakers. Of course, this is a narrow view to take; but whether so or not, it is a fact, and it has not increased the wage earner's full trust in trade schools as institutions which he should help foster.

However, this suspicion and distrust does not present the real attitude of the wage earner toward industrial education, nor even toward trade schools. The labor movement idea is that the production of American manhood and womanhood is more essential than the production of manufactured material.

Industrial education could be carried on in all branches of trades, in all unions, in cooperation with our public school system, and with satisfaction to all concerned, if only carried on in the spirit it should be—and not for the greed and selfishness of the few who wish to make personal profit out of the enterprise.

THE IDEA OF THE NEW EDUCATION IS NOT EXPLOITATION OF SELF NOR DEFEAT OF OTHERS. INSTEAD OF THESE OLD AND CRUDE IDEALS WE SHOULD HOLD BEFORE THE YOUTH OF TODAY THE NEED OF SOCIAL EFFICIENCY AND STRENGTH, THE RESPONSIBLE OPPORTUNITY FOR DEMOCRATIC LEADERSHIP, AND THE EVERYDAY DUTY OF HUMAN BROTHERHOOD.
—Robert Judson Aley, Editor, "The Educator Journal."

EDITORIAL

THE ramifications of the problems of industrial education are so vast that the thoughtful educator who studies the question is carried into fields which, a generation ago, would have seemed to be entirely unrelated to his major interests and to his professional duties. Even today educators not infrequently inquire, with evident surprise, what possible interest organized labor can have in industrial education, or what right labor unions have to attempt to influence the action of school boards regarding the establishment of industrial schools?

Industrial Education and the Labor Question

Such surprise is due either to a relatively narrow conception of the function of the modern public school system or to an entire misunderstanding of the fundamental purpose of labor organization. It is not our intention to discuss in detail the relation between the movement for industrial education and the labor question, or to attempt fully to define the attitude of labor unions toward the newer type of schools recently established, but merely to note the salient factors in the problem. It is to be hoped that all who are interested in this question will consider the pages of VOCATIONAL EDUCATION as offering opportunity for its full and free discussion.

Assuming the movement for industrial education to be somewhat clearly defined as regards its purpose, scope and methods, and assuming the right of labor to organize in its own interests, what concern has labor with the new phase of education?

First, the American workman is interested in the effect of the movement on general education. For more than a century he has been a staunch supporter of, and a firm believer in, the system of free public schools, which, during that time, has been gradually evolving. He believes that the public school affords his children the same opportunity for educational advancement as it offers the children of his employer, and he looks carefully into any proposition which might result in segregating the schools of the working classes thereby promoting or emphasizing class education and class distinctions generally.

It would seem that the American workman has an almost superstitious faith in the impartiality and the efficiency of free public education. He is inquiring whether the new schools will curtail in any respect his established rights to a supposedly equal and disinterested, free, public, general, cultural education.

Mistaking work as a curse, because, forsooth, he has had too much of it, he looks with suspicion on schools which might reduce the time spent in book work and devote a considerable part of the school day to activities which savor of the shop. At all events he proposes to inquire, to watch, and to use his franchise, if necessary, to preserve what he considers to be equality of educational opportunity.

**Regulation
of the Labor
Supply**

In the second place he proposes to examine with great care the possible effect of the proposed schools on the labor market. From the earliest days of the guilds, craftsmen have sought to regulate in some adequate way the number and qualifications of workmen admitted to the trade. When the workmen and the employers were in the same organization this regulation was found to be necessary in order to maintain standards of workmanship and to secure the best development of the crafts. When employers and workmen grouped themselves into separate and possibly antagonistic organizations, the latter found that regulation of the number of workmen was necessary for self-preservation. Without such regulation workmen have always been placed at a great disadvantage, and where production is conducted on a gigantic scale, as is so often the case in modern times, the workingman has been forced to organize to prevent being reduced to a state of essential slavery.

All promoters of industrial education maintain that large numbers of workmen must be trained and they believe that the proposed schools should meet this need. Workmen are quite naturally interested in the general proposition as they have always been in any plan to increase the labor supply. They are more concerned, however, with the *control* of the schools. They ask what the effect might be if a system of industrial schools should be controlled by, or maintained in the interests of, organized, and possibly unfriendly employers.

It is not to be admitted that a majority of the advocates of industrial education have in mind anything but the best interests of the workmen, but people with the best of intentions frequently make costly mistakes, and labor is not convinced that the promoters of the new

schools have either a sufficiently accurate knowledge of labor conditions or a clearly enough defined sympathy with the workman to enable them to make the rather difficult adjustment between educational opportunity on one hand and industrial necessity on the other.

Furthermore labor has every reason to be suspicious of a certain small minority of those advocating industrial education. This minority is made up of employers who are bitterly opposed to what they term "the Labor Trust" and who openly avow that only thru a far reaching system of industrial education can "the embargo on American industry," by trade unionism, "be permanently lifted." For this reason organized labor demands public control of industrial education, believing that the voters at large will be sufficiently sympathetic to its position.

Equitable A third point of contact between industrial education and
Disposition the labor question is the nature, amount, and disposition
of the of the material product of industrial schools. Organized
Product labor expresses the fear that if these schools adopt the
practice of manufacturing a commercial product we shall soon have
thousands of school workmen competing with adult workmen in the
shops. The aggregate amount of such school product might, it is feared,
reduce somewhat the amount of work now performed for wages.

One factor sometimes overlooked is that most of the pupils, and frequently many of the teachers, if not in the industrial schools, would be in *some* labor market. It would therefore seem reasonable to allow production equal to the labor which is thus withdrawn from commercial competition. Organized labor has admitted the necessity of manufacturing, in some cases, a commercial product, but insists that this should be kept at the minimum.

It should be recalled that labor has often protested against unfair competition of convict labor and has demanded the curtailment or the complete abandonment of the manufacturing of certain products in reformatories. Admitting the flagrant wrong which the misuse of contract prison labor has done, both to those inside and to those outside of prison walls, we are inclined to think that, in this particular, labor is sometimes less socialistic than it might be. The problem is a social and a moral one, and it will require that labor, as well as capital and society at large, make some sacrifice. If engaging in real work and becoming somewhat skilled in a trade is a means, and perhaps the only means, of either reformation or education, there can be no doubt that labor

will eventually admit the justice of giving both the delinquent and the pupil the opportunity to do that work.

We are told that the cost to labor of strikes during the last year, while large in the aggregate, amounted to only one day's wages for each workman. We believe that if every industrial school should manufacture the maximum product, consistent with its main purpose as a school, the total loss to each workman would be small and would be negligible when contrasted with the resultant benefit to the pupils.

It is also a fair question if the city or state is not fully entitled to whatever financial return can be secured in this way. The 1911 Report of the United States Indian School, Carlisle, Pennsylvania, shows that the value of products from its industrial departments, including the farms, amounts to upwards of \$100,000.00. It is not to be doubted that many a public industrial school could return a substantial amount to the city from the value of its manufactured product, and when we remember the cost of this type of education, and also when we reflect on the return which industrial education will make to labor in the added ambition and intelligence of future workmen, the slight sacrifice above suggested does not seem to be unreasonable.

On the whole we believe that labor's contention that it has the largest personal and public interest in industrial education is not without foundation, and it is gratifying to note that this fact is gaining recognition and that the assistance and advice of labor is generally desired in the promotion of industrial education and that this assistance is willingly and generously given.

As above stated it is not our purpose at this time to discuss in detail the several phases of the problem, but merely to state them with what clearness we may with the hope that a general discussion of them may be encouraged thereby.

—FRANK M. LEAVITT.

Danger of Undue Emphasis on Technical Side	An adequate treatment of the subject matter included under the term of vocational education would cover a whole system of education. In fact, education means one continuous and increasingly well ordered relationship with the body of knowledge and the activities involved in the sciences, arts and resulting <i>philosophy of life</i> which the subjects of agriculture, household, mechanical, and decorative arts comprehend and create. It rests largely with the teachers of these subjects to impress upon their students the inferences to be drawn from this work as to the
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economic and social values of processes and results, the ethics involved in points of view regarding work and workers, and the historic development of vocations leading to an intelligent interest in present and future conditions. To emphasize the technical side of the work alone is not sufficient. Vocational training should be the means of introducing the young mind to the work and life of society of which it is an integral part, of which fact it ought to be made conscious.

Huxley defined education as being "*The instruction of the intellect in the laws of nature under which name I include not merely things and their forces, but men and their ways* and the fashioning of the facts and of the will into an earnest and loving desire to move in harmony with those laws." (Italics are ours.)

It would appear that Huxley had covered the three phases of vocational education. In interpreting his definition in terms of modern needs and conditions, education demands that we give consideration, first, to the instruction of the intellect; second, to knowledge of things and their forces; and third, to men and their ways. Without attempting to answer, it might be well to ask a few questions which will come very properly under these three heads.

Instruction of the Intellect Is the education of tomorrow to tag on behind industrial and social changes? Is it to limit the manual, household, and decorative arts instruction to a few minutes a week? Are these subjects only to be the pepper relish to the curriculum? Are our schools to continue to go contrary to laws of child activity, human interest, and social conditions? Are we always to discuss liberal versus vocational training, or can we some day talk about EDUCATION! Shall we think of vocational education as being the fitting of men for jobs, or shall it be the fitting of jobs to men? Should the school system be organized as it is now on the basis of a shoe factory, or shall we find that processes, methods, machinery, and system will not produce children as perfectly as they now produce shoes? Shall we consider a child normal or abnormal that is able to learn and memorize unrelated facts and study a mass of subject matter apart from his every day experience when the history of the race shows that it has developed thru doing things which came out of its experiences?

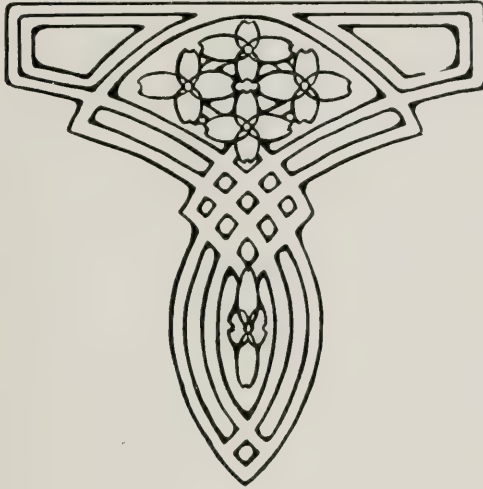
Things and Their Forces Shall we be ready to reorganize methods of *consumption* in order that we may be as proficient in the distribution of health, wealth, food, clothing, shelter as we are now in methods of *production*? Will the present exploitation of women in industry and the agitation of equal suffrage bring about a new conception of woman's work and usefulness? Will the Government take as much interest in eugenics, as it now does in raising horses, cows, and hens? Shall we always exploit little children in the unskilled industries? Shall we always have tenement houses, sweatshops, and congestion, or will the people gradually return to the open country? Are we to bring about an effective correlation between book work and shopwork thru a differentiation of the subject matter according to the sex and occupational interests? Does the boy who goes to work in a shoe factory need a knowledge of leather and tool processes before going to work, or does he need to know more about civics, industrial history and good literature?

Men and Their Ways Will a girl who has had a course in millinery wear a hat that follows the "style" even if it demands a willow plume which has six thousand knots tied by little girls who earn \$4. a week? Will technical training in shop mathematics, mechanical drawing, and structural steel construction keep a McNamara from blowing up a "Times" building? Will a girl who has taken the course in dressmaking use materials which places a heavy demand upon her pocketbook, made up in a way that imposes even greater demand upon her physical endurance, and will she when making the dress consider the social conditions of the textile workers of Lawrence who made the material? Will it be possible to bring about personal taste, appreciation for the beautiful, clean back yards and tidy streets, by giving only the technical side of drawing in the secondary schools? Which will be more beneficial to the average textile worker—an evening course in textile design, or a gymnasium floor in a recreation center?

Every one of these questions in one form or another is now before our country. Nearly all concern *work* and *workers*. Those who are engaged in vocational education are interested in both the Job and the Man. The boys and girls now in our schools will be the ones who must answer the questions that have been raised. Out of the mass of the

people there will spring up leaders in our new political and social movements. But no democracy can live that does not have intelligent laymen, and the latter need something more than latin grammar or board planing. Commissioner Snedden of Massachusetts in a recent article raised the question—What of liberal education? May we not with equal value inquire—What of vocational training?

—ARTHUR D. DEAN.



OF CURRENT INTEREST

VOCATIONAL GUIDANCE.

Vocational guidance is a development of the last five years. So recent a movement is it that many people are not quite clear as to its real character. Vocational guidance means directing the attention of the vast army of young people who must and do leave school at an early age to go to work, to the possibilities of the various vocations. To this end an immense amount of information is being collected and arranged in the most convenient form and placed at the disposal of pupils and parents. Vocational guidance means also the collecting and dispensing of information about the best means for acquiring the necessary training for such vocations as students have avowed an intention of following, after due consideration and consultation with parents. It means the effort to prevent industrial and professional misfits, the source of so much discontent in the industrial world. In these days of keen competition people cannot afford the time or money to change from occupation to occupation until congenial employment is found.

All this is a broad field, involving many activities, and calling for time, money, and the highest social gifts in its workers. But no part of these varied activities is concerned with urging any pupils into vocations or vocational schools who can be persuaded to remain in the public schools. On the contrary one of the principal investigations is conducted and results tabulated for the purpose of showing parents and children the material advantages of higher education.

Therefore the most prejudiced opponents of vocational education can have no possible quarrel with vocational guidance. Whatever the trend of the discussion as to comparative values of "vocational" and "cultural" education, whatever the attitude of labor toward the trade school, all factions, the college men and the labor leaders, the employers and the employed, can join forces in furthering this great movement; for the facts remain that in spite of every pressure brought to bear, in spite of every inducement extended, in spite of public effort and private pleading, thousands on thousands of our boys and girls yearly drop out of school and go to work. They do this with no definite aim in view, taking the nearest available job without regard to fitness either way. There is no misery of mind greater than that which comes to the honest man who, too late, finds himself condemned, thru unfitness or mistaken choice, to lifelong drudgery at a job he hates. We all know cases of such unfitness, of wasted talent, of opportunities missed thru ignorance that the opportunity existed.

The matter is stated in the following words in the 25th annual report of the Commissioner of Labor: "As connected with industrial education it (vocational guidance) is based on the fact that the great majority of children at the time when they leave school and go to work have really made no choice of a pursuit at all. . . . Often the children have not and cannot attain the information which would enable them to make a choice. The aim of vocational guidance is to change the situation by rousing the interest of pupils, while attending school, in their future work, informing them of the demands and possible rewards of the occupations open

to them, and by helping them to judge of their own capabilities, and to make an intelligent choice of a pursuit. Vocational guidance is developing along many lines, but all are based on the fundamental idea of preventing waste of time and life by helping workers to choose the right occupation and then to fit themselves thoroly for it."

The social significance of this movement is beginning to be appreciated in all parts of the United States, but active work is as yet limited, with a few exceptions, to the larger cities, New York, Boston, Chicago, Cleveland, Philadelphia, Pittsburg, and St. Louis.

VOCATIONAL GUIDANCE IN BOSTON.

The subject of vocational guidance has received more attention in Boston than anywhere else, to judge by the number of organizations which carry on the work, and the practical nature of the work itself. There are five of these organizations, the Vocational Bureau, the committee on vocational direction of the Boston Board of Education, the Boston Home and School Association, the Girls' Trade Education League, and the Women's Municipal League. Of these the Vocation Bureau is chief and was the pioneer in the field, but no rivalry exists between them, as the utmost harmony prevails and cooperation has been so effected that the work of the organizations nowhere overlaps or falls short of covering the field.

The Vocation Bureau was organized in June, 1909, growing out of a bureau, conducted by Professor Frank Parsons, which advised young men in their choice of a profession. "The present bureau represents a cooperative effort on the part of public-spirited men and women in the fields of labor, education, commerce, manufactures, and social work." The work is done by a director and an executive board of thirteen members. There is no fee or charge of any kind for its services. The bureau makes a special effort to enlist the cooperation of employers, to interest them in securing opportunities for progress for their young employees. The employers in turn get the benefit of having those young people directed to their employ who are fitted to fill the positions and who give promise of efficiency.

The bureau does not prescribe vocations nor is it conducted as an employment office. Its activities may be best described by dividing them into groups. First, it maintains a centrally located office for the collection and study of information concerning the various occupations of the community. When secured, this information is classified and made public in such a way as to help young people, teachers, and parents to understand what occupations hold out, their advantages and disadvantages, and the conditions for efficiency and success in each.

To make these researches the bureau employs two expert investigators, who are expected to learn what an occupation is, its conditions and openings, what it demands of a boy, what it offers in pay and advancement, what opportunities are open for securing the specific training it requires, and what the general conditions of employment are as regards health and effect upon the life of the individual. This investigation is conducted by making personal visits to firms, shops, or factories, and by consultation with employers, superintendents, foremen, employees, and labor men, and also by the use of books dealing with occupations and of trade periodicals. The information secured is transcribed on white cards when the occu-

pation presents normal conditions and a fair future, on yellow cards when it offers no future, and on red cards when it presents physical dangers. Over 100 occupations have been thus investigated and the results carefully filed for use as a basis for vocational counsel. In addition, in occupations which seem adapted to such treatment, the facts gathered are worked up into a bulletin for the use of those interested either in choosing a vocation for themselves or helping others to make a choice. The bulletins are not intended to be technical but it is intended that the information shall be reliable, and to this end the bulletins are carefully scrutinized by the persons furnishing the information on the investigation cards, by an economist, a labor union official, and others. The bulletins are supplied as a help to vocational counselors and the various people concerned, but are not intended to take the place of personal consultation.

The second group of activities is concerned with making clear the need of training and educational equipment for the desirable occupations, and by advice and cooperation prolonging the school period of young people, whether by day, or evening, or part-time courses, and also securing other educational opportunities when needed. This work is carried on in part by personal conferences with parents, teachers, advisers, and the students themselves; and in part by correspondence, lectures, and public presentation of the facts whenever an opportunity can be found. This purpose underlies and permeates practically the whole work of the bureau, and every line of action undertaken either directly or indirectly forwards this end.

The third line of work undertaken by the bureau is the provision for personal vocational advice both for those in school and for those already at work, in order to enable them to plan intelligently for their educational and vocational progress. These activities divide into two main channels: the direct organization of vocational bureaus, or committees, or other groups who will undertake such work; and the training, advising, or otherwise helping those who are already acting as vocational counselors or wish to fit themselves for such work. The second line of work has led to the establishment of a course for counselors, conducted by the director of the bureau. The counselors, 117 in number, have been appointed by the school department from the teachers in the Boston school system. Teachers from surrounding towns and cities have attended the course. This class meets twice a month, and besides the addresses of the director, there have been addresses by superintendents of factories, stores, and other establishments. In addition to this a course was given at the Harvard Summer School in 1911.

Fourthly, the bureau furnishes opportunities for consultation to people of all ages, who have personal problems concerning the trades, the professions, and academic or industrial pursuits. This consultation work is naturally informal, but it makes necessary an immense amount of varied information on the part of the adviser.

The work of the committee on vocational direction of the Boston public schools, is closely allied with that of the Vocation Bureau, as is shown in the courses for vocation counselors, who are appointed by this committee. The committee has done good work in helping to select the grammar school graduates who shall be admitted to some of the more popular specialized high schools, where the applicants for admission outnumber the capacity of the schools. The committee also devised

a vocational record card on which all the graduates of the elementary schools were to be registered. These cards were to be sent forward in the fall to the high schools the pupils had entered, and were to be revised twice during the high school course. The value of this card record is not so much in the data secured as in the attitude of mind it induces in pupil, parent, and teacher.

The committee assists in placing boys by arranging a system of summer apprenticeships, with a vocational adviser who finds employment for the boys during the summer in business houses of the city. The business men cooperate heartily with the plan, and agree to give the boys the best possible chance to obtain a knowledge of the business and to demonstrate their fitness or unfitness for it. They also agree not to retain a boy in their employ after school opens in September, even tho he shows a special aptitude for the work. The Trade School for Girls has a "vocational assistant" who finds employment for the girls and keeps in touch with them, assisting them if they find a change advisable.

The Boston Home and School Association is a private organization and the work of vocational guidance is only one of its activities, the purpose of the association being to secure the closest possible cooperation between parents and teachers in all that concerns a child's welfare. It plans during the coming year to secure by means of a questionnaire, information as to the plans of parents for future education of their children and their ambitions as to vocation. With this information on hand the association will arrange lectures and conferences for the various parents' associations. A lecture bureau has been formed and a list of competent speakers on vocational guidance prepared.

The vocational guidance work of the Girls' Trade Education League differs from the work of the Vocation Bureau in that it concentrates on the study of the problem of the girl between fourteen and eighteen. Information is very carefully collected and put into available form as in the other organizations and in addition much stress is laid on "follow-up" work during the first year of a girl's employment. Bulletins for girls' work are issued which take much the same form as the bulletins for boys' work issued by the Vocation Bureau. A vocation office is maintained for direct aid for the girls who leave school. The League endeavors to keep the girls in school as long as is possible.

The Women's Municipal League of Boston has materially assisted the work of the organizations in vocational guidance by the collection of information on the subject of opportunities for securing vocational training in educational and philanthropic institutions as well as in other ways. The information when collected has been arranged in charts of convenient form and size for public use. These charts were described in the January number of this magazine. The charts will be verified and revised from time to time to record new schools or departments.

These five Boston organizations are thus covering the field of vocational guidance thoroly thru specialized effort by each body and thru the combined effort of all. This union of forces is sure to produce results and is a most commendable feature of the movement in Boston.

NEW YORK CITY.

Vocational guidance work in New York City has centered in the activities of the High School Teachers' Association. This association has for several years

maintained a Students' Aid Committee, sometimes called the High School Employment Committee, which has been of service in securing information about vocations, in directing students into the proper channels and in publishing informational material about vocations. In addition to the general committee made up of representatives of all the high schools of the city, each high school has a local committee consisting of one or more persons. The work has been supported by donations from the High School Teachers' Association, and by contributions from teachers and friends. It has been carried on outside of regular school duties.

The results have been effected by means of conferences with individual pupils and their parents, addresses to groups of students by persons especially qualified to speak of the opportunities for young people in their respective vocations, by leaflets, by securing for the school libraries books bearing on the subject of selecting a vocation, and by conferences with employers and associations of employers.

One of the leaflets, "Choosing a Career, a Circular for Girls," is typical of the series and discusses such topics as "The Field of Work for Women," "Factory work," "Civil Service," "The Social Worker," and "The Letter of Application."

The Students' Aid Committee was not satisfied with its endeavors, however, and saw much more to be done than was possible under the original organization. So when Mr. Weaver presented his annual report in the fall of 1909, he submitted to the Association a broader plan which embraced the following features:

"There should be in every day and evening high school, and in every college and fitting school, one specially well-informed teacher, with a proper allowance of time, to attend to this work; to have accommodations for holding conferences with students and groups of students, and proper facilities for keeping systematic records of the industrial and commercial careers of those who go out from the school.

"This problem is not as large a one as it would seem at first glance. With definite vocational information at hand, with friendly relations established with employers, by far the largest number of pupils will be able to make their vocational adjustment by the aid of their parents. The special problem of the school advisers would be to help the young people who have attained intellectual development which has lifted them out of sympathy with their own families. Failure to do this work properly for these young people of the working classes will bring results like those which are likely to follow when one kindles a fire and afterward tries to hide it away in some obscure closet. It would be desirable that the vocational officer in a school should follow up the young people for a few years by requiring them to consult with him before making any changes in their places of employment or their projects, and by requiring periodical reports of their progress. The effect of such requirements would be to insure steadiness of purpose in the young people, greater permanency in service to the employer, and to increase the vocational officer's familiarity with the requirements of the offices and shops of the employers with whom he was placed in touch. This vocational officer should of necessity be an integral part of the school or the district which he represents, because his value to the school and to the employer will depend upon the thoroughness with which he is acquainted with the character and possibilities of the student body of the school. His relations with the school should be of such a nature as to enable him to secure and hold the confidence of the students and their parents.

"To work out the details of a comprehensive plan for a city there should be a special vocational director, with a competent corps of trained men and women. The function of such a vocational director would be to enlist the cooperation of the business community, to study the requirements of the employers, to establish friendly relations with groups of employers, and with those schools which are best prepared because of the character of their students, their facilities for instruction or their location to meet the needs of these groups of employers, and to recommend such modifications of the work of these schools as would enable them best to meet the wants of the employers with whom they are in touch.

"Such a special vocational director should collect and make available for the teachers, and for the students of the several schools thru publications and lectures, vocational information which should deal with the requirements for success in the several learned professions, skilled trades and commercial pursuits, the readiest means thru which these requirements can be met by the young people, and the returns which properly qualified young people have a right to expect after they have entered upon these several vocations. This vocational director would be doing for young people, in order to help them realize their highest possibilities, what is now being done by the state and the national governments for the agricultural and commercial interests of the country.

"Such a plan, to be successful in the highest degree, must seek to enlist all classes of employers, and for this reason a general vocational director of the schools of a city should serve with impartiality all the educational agencies of a great city.

"Maintenance of such a general vocational agency for a large city would require but a fraction of the amount that would be needed to endow a college. As a means of stimulating the intellectual enterprises of the community, as an agency for promoting greater industrial efficiency, and as an active force for insuring the welfare of large masses of people, the organization and development of a pioneer enterprise of this kind for a large city promises so much that it should appeal to those who are generously minded as perhaps no other social want appeals. The establishment of such an agency would enable the business community to supply an effective, corrective influence thru which it could keep at work continuously its reactions upon the educational forces and the methods and tendencies at school."

In 1910, a committee of the Association was appointed to prepare for the "Child Welfare Exhibit," and in the course of its work the committee acquired much information as to the need for vocational direction in our schools. Dr. J. K. Van Denburg collected statistics on the following points: the occupations of the parents of high school pupils, the occupations of the adult population of New York City according to the census, the occupations for which the high school pupils intended or hoped to prepare themselves.

A comparison of these statistics brought out the striking conclusions that certain classes of the population do not make the same use of the high schools as do other classes, either because they cannot afford to keep children in school so long, or because schools do not offer what they consider worth while for their children; and that the aspirations of the high school pupils are directed toward callings out of all proportion to society's need for service in those callings, while interest in other callings is destroyed and preparation for them neglected.

VOCATIONAL GUIDANCE IN GRAND RAPIDS.

The Central High School of Grand Rapids, Michigan, has a unique system of vocational guidance which is explained in the following paragraphs by Jesse B. Davis, principal of the school:

"The system aims to direct the thought and growth of the pupil thruout the high school course along the line of preparation for life's work. The plan is intended to give the pupil an opportunity to study the elements of character that give success in life, and by a careful self analysis to compare his own abilities with successful men and women of the past. By broadening his vision of the world's work, and applying his own aptitudes and tastes to the field of endeavor that he may best be able to serve, it is attempted to stir the student's ambition and to give a purpose to all his future efforts. Having chosen even a tentative goal, his progress has direction. In the later study of moral and social ethics he has a view point that makes the result both practical and effective.

In order to reach all the pupils of the high school this work is carried on thru the department of English, which subject all pupils must take. Brief themes and discussions form the basis of the work. Pupils are directed in their reading along vocational and ethical lines and are advised by teachers who have made a special study of vocational guidance.

An outline of the work has been prepared tho the teacher is given opportunity to use her own individuality in working out the details of the scheme. A bibliography has been prepared which is arranged according to the outline, thus assisting students and teachers in the use of the library. The outline is arranged by years as follows:

First Year.

1st. Semester—Elements of Success in Life.

1. Every-day problems.

(a) The school. (b) The home. (c) The athletic field. (d) The social group.

2. Elements of character.

(a) Purpose of life. (b) Habit. (c) Happiness. (d) Self-control. (e) Work. (f) Health.

2d. Semester—Biography of Successful Men and Women.

1. Character sketches.

2. Comparison of opportunities of with self.

3. Comparison of qualities of with self.

Second Year.

1st. Semester—The World's Work.

1. Vocations: Professions, Occupations.

2. Vocations for men.

3. Vocations for women.

2d. Semester—Choosing a vocation.

1. Making use of my ability.

2. Making use of my opportunity.

3. Why I should like to be
4. The law of service.

Third Year.

1st. Semester—Preparation for Life's Work.

1. Should I go to college?
2. How shall I prepare for my vocation?
3. Vocational schools.
4. How shall I get into business?

2d. Semester—Business Ethics.

1. Business courtesy.
2. Morals in modern business methods.
3. Employer and employee.
4. Integrity an asset in business.

Fourth Year.

1st. Semester—Social Ethics: The Individual and Society—from the Point of view of My Vocation.

1. Why should I be interested in:
 - (a) Public schools? (b) The slums? (c) Social settlements?
 - (d) Public charities? (e) The church? (f) Social service?
2. The social relation of the business man.

2d. Semester—Social Ethics: The Individual and the State from the Point of View of My Vocation.

1. The rights of the individual.
2. Protection to the individual from the state.
3. The obligation of citizenship.
4. The rights of property.
5. The responsibility of power.

VOCATIONAL GUIDANCE IN CLEVELAND.

Cleveland is doing an important work in vocational guidance for girls thru the agency of the Cooperative Employment Bureau for Girls, under the personal direction of Miss Bertha Stevens. The Bureau was organized in December, 1908, at the instigation of the Consumers' League, and under the joint management of ten social and religious organizations interested in matters relating to the employment of girls. At that time the newspapers and commercial employment bureaus of low standard were the only organized means offered girls for securing work in the trades, and the trades, therefore, became the line of work assumed at the start by the Cooperative Employment Bureau, altho institutional and domestic work (for young girls) has since been added.

Three years of experience in dealing with 3,508 girls have shown the waste and demoralization incurred in the effort of the girl who leaves school at fourteen or fifteen years to make the adjustment between school and work, and have shown that inefficiency and misfitting come from a wrong start. The hope of the Bureau is, thru state laws and public school cooperation, to make at least part-time attendance at school compulsory, until the pupil who must become self-supporting has received a fair degree of education and definite occupational training.

The Cooperative Employment Bureau has started work along the following lines:

(1) Investigation of local trades and the preparation of simple handbooks describing the processes and prospects in each, and including advice to those entering them.

(2) Vocational guidance, based on knowledge gained thru these investigations, on the teachers' estimate of the girl, and on the inclination of the girl and her parents.

(3) Placement in investigated places of employment, and follow-up work.

Trade investigation has included printing, bookbinding, and allied trades, hair-dressing, manicuring and dress-making. A study of "Printing, Bookbinding and Allied Trades" has been printed as the first of a series of trade handbooks. The general plan of the bulletins issued by the Girls' Trade Education League of Boston has been followed. The outline covers the following points:

Extent and prospects of the trade in Cleveland.

Demand for girl workers.

Descriptions of positions and processes and wages in each.

Conditions of work.

Training required; how secured.

Qualifications for the trade and suggestions for those entering it.

This first study has been read and passed by two employers in this line of work, and by a labor union representative, and the same plan will be followed with subsequent studies. In connection with this series, an introductory handbook on "How to Judge of a Trade" is in preparation which includes: considerations of health, prospects, and moral tone; cautions against patronage of unscrupulous employment bureaus, against undertaking expensive training courses of which no more is known than the newspaper advertisement, and against making important contracts, especially in the matter of apprenticeship, verbally; lists of opportunities for trade and technical training available to Cleveland girls, and of so-called dangerous trades; pertinent excerpts from the Ohio Employers' Liability Law, and laws governing the conduct of employment agencies and the employment of women and minors. A circular called "Thoughts for a Girl Who is Leaving School" has also been issued, for the initial suggestion of which, and for several paragraphs embodied, the Bureau is indebted to the Edinburg (Scotland) School Board.

The Bureau has six volunteer workers who make visits to applicants' homes, sometimes to induce the parents to let a girl remain longer in school, to undertake a course in trade training, to inquire whether its placement is working out satisfactorily, or for other purposes. Two hundred eighty-one such visits were made during 1911.

In the summer the office of the Bureau serves as a vacation as well as an employment bureau. Information has been secured regarding institutional camps open to working girls, and a directory of country boarding places at rates between two and six dollars a week has been prepared. The Bureau also maintains its own camp at a lakeside resort within a five-cent fare from Cleveland, and takes care of fifty to one-hundred girls a week. The advantage of having as matron

one of the Employment Bureau staff is clear, in that the camp with its feature of personal daily association shows up more clearly than office interviews could do, a girl's need of vocational direction.

The system of registration of Cooperative Employment Bureau applicants includes for each a card recording detailed information of the applicant's schooling, special training, positions held (in chronological order), and wages received in, and reasons for leaving each. Similarly a card is made out for each place of employment visited, recording not only positions, pay, and opportunities for advancement, but conditions of work-rooms, hours, dangers to health, and other considerations. During 1911 the total number of new applicants registered was 1,500; of placements (of these and applicants previously registered) 870.

WALTHAM, MASSACHUSETTS.

Vocational guidance in Waltham, Massachusetts, shows what can be done in this work in a smaller city. The work is being done in the high school which has two vocational counselors, Charles M. Goodrich and Miss McIlvene. They have followed the plan used in larger cities in a general way, keeping on file information as to the local industries and business openings, and securing from the pupils information which will serve as a basis for giving counsel. This last kind of information is found by the use of a "vocation card," which all students are urged to fill out, tho none are required to do so. The card is in the following form:

Name	Class	Date
Address		
Personal Description		
Course of Study	Preparing for	
	Freshman	Sophomore Junior Senior
General Scholarship		
Most Successful in?		
Attentiveness		
Reliability		
Courtesy		
Intended Occupation?		
Temporary Work Desired and When?		
Experience?		
Remarks		

On the back of the card is the following statement: "This vocation card is intended to aid pupils in securing temporary work during the school year or vacations. It is also intended to aid pupils in selecting their occupation for later life. Pupils and parents are invited to confer with either Miss McIlvene or Mr. Goodrich concerning such work. Information concerning the various occupations is kept on file with each of the above teachers."

Particular attention is paid to the pupil who is obliged to leave school before graduation. Pupils and parents are invited to consult concerning the pupil's "life

work" early in the school course so that the pupil may be better fitted for that work. This applies to pupils needing work immediately after graduation as well as those planning to take up studies at higher schools or colleges. Students are often advised to consult men engaged in the line of work which they hope to pursue. It frequently happens that pupils on investigating a certain line of work and its possibilities find such work not as attractive as they thought at first.

The whole plan consists in an attempt to better fit a pupil for his surroundings in life by placing within his reach information not likely to be otherwise available to him and by talking over with him his plans for earning a living.

THE MINNESOTA IDEA.

President Vincent of the University of Minnesota is planning to reorganize the College of Science, Literature and the Arts, dividing the students into groups according to the vocation they intend to adopt after graduation. There will be the teaching group, the business group, the social service group, etc. At the head of each group a dean will be placed who, in addition to the usual work of a college dean, will become a vocational counselor. By means of lectures, informal talks, and direct investigation, he will thoroly familiarize the students with their chosen vocations. Not only will the dean advise the beginning students as to choice of vocation but he will be able to assist the graduates whose capabilities he knows, into positions for which they are fitted, thru his familiarity with the conditions of the vocation of the group which he heads.

President Vincent believes this plan will eliminate the great waste of time and effort which comes from the indecision of the average student in regard to his choice of a life work, this indecision being due in most cases, to lack of information about the various possible vocations. Under the proposed plan the student will find the studies of the curriculum arranged with a definite vocation in view and will take only those subjects which are selected for his group. Under present systems the student is turned loose among a vast number of electives from which he selects at random, choosing those subjects which are recommended by friends, or have a surface interest, or appear easy, or distinguishing in some way. Not until nearing the end of his course does he realize that he might have chosen far more wisely if he had had a definite aim and a plan of action.

If President Vincent's plans are carried out at the University the experiment will be followed with keen interest by both parties to the ever-widening discussion as to the efficiency of college graduates.

APPOINTMENT COMMITTEES.

Under the head of vocational guidance comes the work of the appointment committees of the older English universities. The Cambridge committee has recently issued a report in which the history of the work of appointment is outlined. At the time of organization a strong prejudice existed in business circles against university men, but now the committee enjoys the confidence of the entire local business world. This was made possible by the system which the committee adopted of requiring only a nominal registration fee and no commission. They were thus free to recommend picked men. By maintaining close relations with

the college staffs and tutors the students registered are only those thoroly endorsed by the college authorities.

The appointment committee has established advisory committees, one in London and one in Yorkshire, for consultation in matters of policy and for widening the sphere of the appointment committee, itself.

The Appointment Bureau of the Women's Educational and Industrial Union of Boston published this last year a series of interesting and helpful little bulletins, giving information about various occupations open to women. These bulletins are for use in the Bureau's work of vocational guidance for undergraduates. They are models of direct and condensed information; and a more detailed description may prove helpful to those who are planning vocational guidance work.

The bulletins are alike in arrangement of subject-matter. The first topic is "Sources of Information;" next comes "The Occupation: Its Nature and Scope," with divisions and subdivisions carefully numbered or lettered, giving such points as branches of the business, possibilities, essentials, character of the work of each branch, etc.; thirdly is given "The Person: Qualities and Training;" fourthly "The Pay: Positions and Opportunities;" lastly come "Census Bureau Reports" and a "Bibliography."

No space is wasted on theory, every statement being founded on experience in appointment work or on first-hand information from employers.

THE PAGE BILL.

The subject of greatest interest to the promoters and teachers of vocational education at the present time is the Page Bill (or the Vocational Education Bill, as it is frequently called), which is to be presented at the present session of Congress. Many societies, educational, industrial, and philanthropic, have given the bill official endorsement or have expressed sympathy with its principles. Among the societies giving official endorsement are; the National Education Association, the National Association of Colleges, the National Association of Normal Schools, the American Federation of Labor, the National Federation of Women's Clubs, the National Conservation Conference, the Southern Educational Association, the American Association of Home Economics, the Southern Commercial Congress, the National Grange, the Farmer's Union, the Farmer's National Congress, the Southern States' Association of Commissioners of Agriculture and Other Workers, the National Agricultural Press League, and the American Association of Agricultural Colleges and Experiment Stations.

The first five of these bodies sent representatives to a special conference held in Washington, December 14th, which conference discussed steps to be taken in pressing the early passage of the bill thru Congress.

Every interested educator and citizen should cooperate with these organizations in the good work by local work in each congressional district and state, bringing the pressure of public opinion to bear upon the congressmen of the local districts.

For the benefit of those who have not had an opportunity to study the bill the following summary is presented:

According to the terms of the bill, \$5,000,000 is to be appropriated for maintenance of instruction in the trades and industries, home economics, and agriculture in public schools of secondary grade. For the maintenance of such instruction in state district agricultural schools of secondary grade \$4,000,000 is to be appropriated. It is proposed that branch agricultural experiment stations at the agricultural high schools be maintained and administered as parts of the state experiment stations now established, and for this purpose an appropriation of \$1,000,000 is to be made. A provision is made to maintain in each state college of agriculture and mechanic arts an extension department devoted to giving instruction in the subjects named to persons not resident at the college nor at the normal or secondary schools provided for by this act. An appropriation of \$5,000,000 is to be made for this purpose with the provision that ten thousand of this sum shall go to each of the forty-eight states and territories and twenty thousand to the office of experiment stations of the Department of Agriculture. Further provision is to be made for annually increasing sums in addition to the above if all other limitations are complied with and the added limitation that each state legislature must appropriate an amount equal to the allotment for that state from this added appropriation. A provision is included also for maintaining courses in the subjects outlined in the bill in state and territorial normal schools, the appropriation for which is to be \$1,000,000. There is full provision made for appropriations for expenses incurred in the Department in carrying out this act. The appropriations are to be made annually beginning with the year ending June thirtieth, 1915.

It will be seen by the terms of this bill that four different kinds of schools will be benefited; ordinary schools of secondary grade, state district agricultural schools of secondary grade, state colleges of agriculture and mechanic arts, and state and territorial normal schools. The state colleges of agriculture and mechanic arts are to be aided for extension work only. The public schools of secondary grade and the college extension work will receive the largest appropriations, \$5,000,000 each. Next in size of appropriations come the state district agricultural high schools with \$4,000,000. The experiment station work in these agricultural high schools and the normal schools will receive \$1,000,000.

A COOPERATIVE AGREEMENT.

Cooperation between a trade union and the board of education is a new note in New York City school affairs. An agreement has been entered into by the board of education and the pattern-makers' association, which provides for the attendance of apprentice pattern-makers at a public evening school where a course will be given them under the joint supervision of the school authorities and a committee of the association. Students completing this course will receive certificates and diplomas for satisfactory work which will bear the seals of the board of education and the pattern-makers' association.

The school committee of the association will investigate the work and attendance of apprentices, and will report on matters of discipline and curriculum. The courses will be open to students other than the association apprentices, but the latter will be given preference in admission if the school becomes crowded.

This action of the New York schools and the union will doubtless lead to the establishment of more trade schools and the introduction of continuation schools in

the near future in the city, but it has a wider significance as looking toward a better understanding between school authorities and trades unions on the subject of trade schools.

COLUMBIA UNIVERSITY SCHOOL OF PRACTICAL ARTS.

At a January meeting of the trustees of Columbia University, a school of Practical Arts was created. The subjects of instruction will include household and institutional management, dietetics and cookery, costume design and decoration, nursing and sanitation, wood and metalworking, art industries and music.

The purpose of this new school will be to give vocational training of collegiate grade and character to those students, both men and women, who do not wish to take a regular college course or to prepare themselves for one of the professions for which a college education is necessary.

Students will be admitted to this school who are graduates of standard secondary schools.

The School of Practical Arts will be under the immediate charge of the trustees of Teachers' College, and to carry out the proposed plan the faculty of Teachers' College will be divided into two parts, as follows: The faculty of education, which will have charge of the work of Teachers' College proper, and the faculty of practical arts which will have charge of the new School of Practical Arts.

COOPERATIVE APPRENTICE SCHOOL IN CLEVELAND.

A cooperative apprentice school was opened in Cleveland January 26th under the direction of the Educational Department of the Y. M. C. A. The work was initiated by the Y. M. C. A. in cooperation with a group of Cleveland manufacturers. The purpose of the school is to give instruction to boys who work in shops and factories and to aid them in becoming skilled mechanics. The work consists of very practical applications of various academic studies—drawing, blueprint reading and kindred subjects—to the immediate problems of the boy in his shopwork. The class work is to be adapted to the special needs of groups of pupils and exceptional individuals.

The course covers four years of 40 weeks each, four hours each week in one lesson. An interesting feature of the work is that the tuition, \$20 a year, or \$80 for the complete course, is paid by the employer, in addition to the payment of regular wages to the pupil while he is in school. Over five classes of about twenty pupils each are in operation and other classes will be added as there is demand for them. About fifteen representative manufacturers have entered the compact to send apprentices to the school.

In such a school an advisory committee of experienced practical men is deemed necessary to legislate upon methods, selection of instructors, provision of equipment, etc., and such a committee has been chosen consisting of four representative Cleveland manufacturers who will have general direction of the work. The movement is the beginning of a work which promises much for individual education in Cleveland.

LEGISLATION IN MONTANA.

In Montana, as in many other states, manual training has proved the entering wedge for vocational education. Many educators in the state are taking an active interest in the subject and now that the legislature has passed an act for the promotion of industrial education vocational schools and departments will be established or increased if already in operation.

The act provides for manual training schools, equipped for furnishing manual and industrial instruction to pupils above the fifth grade, in towns or school districts of more than five thousand population. Districts with less population may maintain such a school. In addition to the usual manual training subjects, the following subjects are to be given: industrial history and geography, and instruction in industrial materials, processes, and products with special reference to the industrial pursuits of the communities in which the schools are situated.

The act requires, in school districts of over ten thousand population, and permits in districts of less population, the establishment of schools of special courses, in connection with manual training, city, or county high schools, these courses designed to furnish a direct vocational training, including training in agricultural pursuits or mining according to the local demand. In such schools classes shall be formed when not less than twenty applicants desire instruction in any vocation. Courses in mineralogy, technical mining, and agriculture may be maintained in the schools in the smaller cities as well as in the larger districts if there is a local demand for them. Pupils who are at least twelve years old and have completed the first five grades, may be admitted to these courses. Evening classes may be arranged for adults and pupils over fourteen years of age.

By the terms of this act both the agricultural and the mining sections of this broad state are considered, local conditions deciding which vocation shall be taught.

Some schools in the state already have courses in agriculture, and others are inaugurating them. The Beaverhead County High School has a four-years' course in which the major subject is agriculture. The course of study of agriculture and allied subjects follows:

First year: Stock judging, blacksmithing, poultry raising, vegetable gardening.

Second year: Farm crops, farm machines, carpentry.

Third year: Soils, irrigation and drainage, mechanical drawing, farm accounts.

Fourth year: Animal breeding, farm dairying, feeding farm animals, farm management.

This high school also offers a two years' course for farmers' boys who are over age, or who for some other reason cannot secure admission to the regular courses of the school, or cannot be induced to take a four-years' course.

The Flathead County High School is the only other high school in the state offering a four-years' course in agriculture. The state course of study provides for agricultural instruction from the fifth grade up.

A PUTNAM ACT SCHOOL IN MINNESOTA.

The Spring Valley school is a good example of the type of schools established

under the Putnam act in Minnesota. Fourteen rural schools are associated with the central school at Spring Valley. A new building has been erected which houses the industrial and agricultural departments. Several different lines of activities are being carried on by this school which make it an important center of influence in that section of Minnesota, as was anticipated by the framers and supporters of the Putnam act, who aimed to supply the demand for better educated farmers.

Work is conducted at the Spring Valley school in agriculture, manual training, and domestic economy. Agriculture is begun in the sixth grade and continues thru the high school. The grade work consists of the study of corn and cereals, practical farm arithmetic, and the study of weeds and injurious insects. These topics are of course treated in an elementary way in these grades. In the high school courses are given in farm crops and animal husbandry. The problem of Southern Minnesota, which this instruction will help solve, is corn and stock raising. As time goes on the courses will be subdivided and intensive study will be made of each crop and each kind of stock. The manual training and domestic economy work is given a very practical turn and made to supplement the agriculture.

Another activity of the school is the conduct of a four-months' short course which began November 13th and will end March 15th. Every effort is made to have this course of the utmost value to the students taking it. The following subjects are given: farm crops, animal husbandry, practical arithmetic, practical English, penmanship, commercial law, woodworking, forging, cooking and sewing. Under the head of farm crops come the selecting, testing, storing, grading, planting, cultivating, harvesting, cost of production, and commercial grading of corn, wheat, oats, barley, and rye. Animal husbandry includes judging horses, cattle, and swine, and the study of breeding, feeding, and general management of each of these animals. Rope work, such as making halters, splicing and braiding is given also. The work in commercial law is given to enable the student to deal with such items as checks, notes, mortgages, and other commercial papers. The elements of local and state government, the levying of taxes and the disbursement of public funds are included in the commercial law course. In the short course manual training, the use of tools and the laying out of work is taught thru the construction of such problems as work benches, boxes, saw-horses, saw-bucks, hay-racks, wagon-beds, and gates.

Still a third activity of the central school is the giving of a week's short course to farmers and their wives. This was given the first week in January and consisted of stock judging and feeding and the study of cereal crops for the men; and cooking and sewing for the women. Every evening a lecture was given.

Not the least important work of the Spring Valley school is that connected with the associated rural schools. Once each month the director of agriculture makes a visit to each of these rural schools where he conducts classes in agriculture and lays out the work for the teacher to give during the following month. To further help these schools, evening lectures are given once a month in each district by the director and his assistant.

The work of schools like this one in Minnesota cannot fail to go far in "keeping the boy on the farm," the problem which is receiving so much attention at the present time.

REVIEWS

Opportunities in School and Industry for Children of the Stockyards District.
By Ernest L. Talbert. University of Chicago Press. 6½ x 9½ in.; pp. 64.

This report made to the board of the University of Chicago Settlement is of unusual interest because it is the result of an investigation made under very favorable conditions, and because altho not every city has a stockyards district, nearly all large cities have districts where large numbers of unskilled laborers have their homes. The investigation was made by settlement workers, already on terms of friendliness and understanding with the people of the district, therefore better able to elicit correct and full information on any subject than the average investigator who goes from house to house, a stranger.

Dr. Talbert's report covers the following topics: "The Situation in the Schools," "The Job and the Family Income," "Some Phases of Vocational Direction," and "Conclusions." A special study was made by Dr. Talbert of children between fourteen and sixteen years of age. The compulsory age limit in Chicago is fourteen, and the majority of school children in this district lose no time in taking out working papers after reaching this age. The parents in the stockyards district are mostly foreigners who have ingrained in them the idea that their children should contribute to the support of the family. How or where the children earn the money disturbs them little. The children themselves, however, usually discriminate in favor of the "easy" job. The statistics show that the greater number of boys enter messenger or errand boy service and the greater number of girls enter factories, the wages in these situations seldom going above four dollars a week. Much of the time these children are idle, drifting from one position to another, the time between positions varying from one to six months. They seem to have no idea of looking to the school for relief, assistance, or further advantages. Over half of the families where children are working actually need the earnings of these children to eke out existence.

These are pitiable conditions which involve a great waste of ability and which underlie grave social problems. From the mass of comparative tables and statistics there have been drawn a number of conclusions which put these conditions in a form more easily grasped. The following are very illuminating:

"The testimony of all parties concerned unites in the conclusion that the public school is not meeting the needs of the children of adolescent age, nor is it adjusting them to future work. The great exodus from school comes before the seventh grade and soon after the child reaches the age of fourteen; the occupations entered are easily learned, mechanical and devoid of educational value; the kind of jobs secured is much a matter of chance; the migration from place to place does not lead to better opportunities, the pay is small and the net result is instability of character; A number of sub-normal boys are as successful in industry as many normal boys; There is no marked economic advantage to be gained by a longer stay in school—up to sixteen preparation in school does not count considering the ordinary run of mechanical occupations open to children; and, Aside from parasitic industries there is no economic necessity for juvenile labor."

In his suggestions for betterment of these conditions, the author proposes: first, a reorganization of the school,—by raising the minimum school age, by providing continuation instruction, and by reorganizing the curriculum of the elementary school; second, attention to bettering the incomes of unskilled laborers; and thirdly, vocational direction, which, to be effective, must begin while the child is still in school. Dr. Talbert emphasizes this last point very strongly, bringing out the inability of vocational workers to get in touch with the boys and girls who have left school without vocational direction. A very short time is sufficient to get them into bad industrial habits and into a frame of mind for which little can be done, so what is done must be attempted while the child is still in the school. Once a start is made there, "follow-up" work is effective.

This report may be read with profit by educators and economists the country over for the conditions described are not limited to Chicago.—V. E. WITHEY.

Finding Employment for Children Who Leave the Grade Schools to Go to Work. By the Department of Social Investigation of the Chicago School of Civics and Philanthropy (Russell Sage Foundation). 6¾ x 10 in.; pp. 56; price 25 cents.

This report was made to the Chicago Woman's Club, The Chicago Association of Collegiate Alumni and the Women's City Club, who had given aid and authority to the Department in their investigations. Like the report by Dr. Talbert to the University of Chicago Settlement this report is mainly concerned with boys and girls under sixteen. Its general discussion presents practically the same conclusion as Dr. Talbert reached. The first topic treated is "The School and the Working Child—A Plea for Employment Supervision in the City Schools." The experimental work of the Department in connection with employment supervision is detailed in a clear and helpful manner. A special investigator, Miss Anne S. Davis, was employed, and an office secured in a settlement house, which became a center of investigation, and thru which 174 boys and 80 girls were assisted during the year from October, 1910, to October, 1911.

The second part of the main report gives in full Miss Davis' report to the Department on trades in Chicago open to girls under sixteen. The statements are similar in subject matter and arrangement to the vocational guidance bulletins published by the Vocation Bureau of Boston, and others. The demand for skilled workers and the need for technical training are interesting features of the discussion of each trade. The majority of employers seem to agree on the advantage of training in a trade school which employs teachers with practical shop experience.

A third part of the book is a collection of notes on the "Public Care of Working-Children in England and Germany," made by Miss Edith Abbott from visits of investigation. These will be a revelation to many people who may not know how far the work of vocational guidance has progressed in foreign countries.

The book closes with an outline of the opportunities for trade instruction for girls in Chicago, and a bibliography relating to employment supervision. Altogether this report will prove a very valuable addition to the short list of books on subjects allied to vocational work.

—V. E. WITHEY.

RECEIVED

Mathematics in the Public and Private Secondary Schools of the United States. Bulletin, 1911, No. 16 of the United States Bureau of Education, Washington, D. C.

Mathematics in the Elementary Schools of the United States. Bulletin, 1911, No. 13, United States Bureau of Education, Washington, D. C.

The above are two sections of the American report of the International Commission on the Teaching of Mathematics, and are the results of a great concerted movement to collect and organize data. One of the chief aims in this work has been to present this data in such form as to meet the special needs of foreign readers who may not be familiar with the organization and several types of American schools.

New York State Education Law as amended to July 15, 1911. Education Department, Albany, N. Y. Article 22 in this volume gives the laws relating to general industrial schools, trade schools, and schools of agriculture, mechanic arts and home making.

County Schools of Agriculture and Domestic Economy in Wisconsin. By A. A. Johnson, Experiment State bulletin No. 242, United States Department of Agriculture, Washington, D. C. A 24-page pamphlet with five full-page plates of illustrations.

Fundamental Values in Industrial Education. By Frederick G. Bonser. Technical Education bulletin, No. 10. Published by Teachers College, Columbia University, New York City. Price 10 cents.

Education and Intelligence. By Andrew F. West, Dean of the Graduate School, Princeton University. Reprint from articles in the New York Times and Philadelphia Public Ledger.

Our Educational Experiment in the Phillipines. By John Paul Goode, University of Chicago. Published by the New England Publishing Co., Boston. This tells of the remarkable system of industrial education that is rapidly being developed under the leadership of Frank R. White, the present commissioner of education in the Phillipines.

An Experiment in Alien Labor. By E. George Payne, of the Harris Teachers Collego, St. Louis. Published by the University of Chicago Press. Price 75 cents, net. A study in immigration dealing especially with the Chinese.

Vocational Guidance. Library bulletin No. 2, issued by the New York School of Philanthropy. Published by the Charity Organization Society, United Charities Building, New York City. A selected list of references.

Orchard Fruits. By A. W. Nolan. A series of lessons published in School Agriculture, College of Agriculture, Morgantown, West Virginia.

The Artisan. A monthly journal printed and published by the workers of the State Trade School of Bridgeport, Conn.



MILTON PRINCE HIGGINS

1842—1912

VOCATIONAL EDUCATION

MAY, 1912

FOUR MONTHS IN A GIRLS' TRADE SCHOOL.

HELEN R. HILDRETH.

CONNECTICUT was the first State to pass a law authorizing the establishment of trade schools to be supported entirely by State funds. Several cities presented their advantages for the location of these schools, but it was decided that New Britain and Bridgeport were as well adapted for them as any of the other cities.

The law was passed in June, 1909, and June 20, 1910, the first State Trade School in the country was opened at New Britain and the second in Bridgeport on August 6th of the same year. The manufacturers of both cities contributed liberally for equipment.

In Bridgeport the boys' and girls' day and evening classes were begun at the same time, with cooperative part-time classes later.

In New Britain the girls' classes were not started at the same time as the boys' as the location of the building was not suitable. In a few months, however, a desirable place was found in a five-room office suite, over a jewelry store, on the Main Street overlooking the lawn of an adjoining church, central for customers, shopping, and pupils, and opposite the Central Grammar School of the public school system.

The work began to take shape in March, 1911, when the office was furnished, equipment ordered, and preliminary investigation started. This consisted of a letter sent to all firms employing women to ascertain their attitude toward the need of trade training in their different lines of work.

Its main industries have christened this city the "Hardware City" and in this type of work the maximum of women's and girl's work is



FIG. 1. STATE TRADE SCHOOL, NEW BRITAIN, CONN. PRINCIPAL'S OFFICE, GIRLS' DEPARTMENT.

unskilled and requires little training. Packing, sorting, polishing, running a machine whose lever is released by a kick, do not require much previous instruction. Business men were interested in the new plan and expressed willingness to cooperate in any way possible. Two firms employed power machine operators, a shirt factory and a hoisery factory, but in such small numbers that it did not warrant the expense of installing machines, as part of the initial equipment. One firm suggested salesmanship as a possible course.

While there were few dressmaking and millinery shops needing girls there was a great demand for skilled workers in the home and many applicants came to learn millinery and dressmaking, in both day and evening classes. By April first a small class was registered for a day school and many times more than could be accommodated for a night school.

ROOMS AND EQUIPMENT.

Meantime the rooms were taking on the appearance of a trade school and the equipment was settling into place. The five rooms were to serve as office and fitting room, millinery classroom, sewing classroom, dressmaking room and the fifth as cloak and general utility room. These fronted the north, so the walls were painted a warm yellow, which gave a sunny appearance and a surface which could be easily cleaned. Each classroom was provided with two 6' x 3' pine top work tables with a drawer, and one 4' x 3' table for the teacher's use. The work tables were all lowered by cutting the legs off one and one-half inches, and the chairs lowered to correspond. A few chairs were left regular height for use at the machine, and for taller pupils. (It has been thought that most people work easiest in a low chair and this trial confirmed the idea.) Each table could accommodate six girls easily and eight if necessary, so sixteen chairs were provided for each classroom. Six machines of standard make were bought to be distributed as the demand called for; with a large waste basket at each table the necessary furniture was in place. Fair sized closets were already built in and could be supplemented by cabinets made at the Boy's School as the work developed.

The cloak room was provided with two cloak and hat racks with twenty-four hooks each with a slat shelf on top designed to fit a given place and manufactured by the boys. A 4' x 3' pressing table and another of the same size for gas stove, irons, and water heating utensils completed the furnishings here.



FIG. 2. CLASS IN PLAIN SEWING.

The office furniture consisted of one flat-top desk, one four-drawer file, one revolving chair, one arm chair, three straight chairs like those in the classrooms, a small rug, a waste basket, a 4' x 3' exhibit table and a cheval glass for fittings. All furniture was of a substantial but perfectly plain type, with no ornamentation to catch the dust and so increase the problem of cleaning.

A full set of tools was provided so that the pupil would not be hampered if she failed to bring them. These were kept in the table drawers and were accounted for at each day and evening session.

The following table gives the cost of the above equipment and a few supplementary items:

1 flat-top desk	\$ 26.00	6 willow waste baskets ...	\$ 3.50
1 revolving chair	6.50	1 cocoa door-mat	2.25
1 arm chair	5.00	1 step-ladder 5'	1.40
1 reed waste basket	1.00	17 window shades	17.50
1 rug	7.50	1 2-burner gas stove	2.00
3 straight chairs	6.75	1 zinc tray for stove.....	.60
48 straight chairs	108.00	1 tea kettle	1.00
6 tables 6 x 3.....	36.00	2 shears	1.50
6 tables 4 x 3.....	30.00	2 button-hole scissors	1.00
6 machines \$272.00 less		3 dress forms	15.30
40%	163.20	2 irons	1.05
48 scissors	19.30	1 ironing board and cover	1.32
48 tapemeasures	2.00	1 U. S. pencil sharpener...	2.50
48 thimbles	1.80	1 cheval glass	11.00
24 millinery pliers	15.00	1 file-4 drawers	35.00
		<hr/>	
		\$524.77	

Having provided for the trade work, the art and academic subjects demanded attention. Few text-books are available but experience has proved that some are desirable to put into the hands of pupils just freed from too much use of them, as an easy transition to the application of knowledge. Misses Gardner & Murtland's "Industrial Arithmetic," William Dooley's "Textiles," Arthur Dunn's "Community and the Citizen," were selected as filling this need, in arithmetic, textiles, and civics. These formed the basis of many informal talks which came as a relief to the trade teacher to allow much needed time for preparing and inspecting work.

The equipment for art work is so simple that this subject need never be discussed from the expense side. Pencils, paper, and paint boxes open up design and color combination as a magical side of dresses and hats,



FIG. 3. CLASS IN DRESSMAKING.

and pave the way for an artistic future for the next generation. The expense of these is as follows:

24	rulers	\$1.30	1	ream white paper.....	1.00
1	gr. pencils	1.50	24	paint boxes 6 colors.....	\$ 8.40
48	pen-holders	1.00	1	gr. Quadrille paper.....	1.00
1	bottle black ink .....	.65	50	blank books	1.92
1	bottle red ink .....	.75	24	Industrial Arithmetics ...	9.60
48	erasers	1.30	24	Textile books, Dooley....	19.20
1	ream drawing paper.....	1.60	24	Community and Citizen, Dunn	14.40
4	reams yellow paper.....	1.40			
					<hr/>
					\$65.02

The business and administrative equipment of a trade school is an important item and one which needs attention at the very beginning; stationery, order blanks, receiving slips, requisitions, application blanks, record cards, circulars, wrapping and tissue paper, twine, labels, and many such items made up a bill of about \$100.00. These were in five hundred lots in many cases, as an economical way of ordering, and will not need frequent duplication.

COURSES OF STUDY.

Having decided upon the following courses in Dressmaking and Millinery, the supplies necessary were ordered.

COURSE IN SEWING.

Pin cushion	Woman's gingham skirt with dust
Tool bag	and bias ruffle
Dish towel	Corset cover
Glass towel	Drawers
Work case	Chemise
Lawn apron with strings	Kimona; dressing sack
Gingham apron	Rompers
Girls' gingham skirt, plain ruffle	Middy blouse
Princess apron	Night gowns
Gored skirt	Shirt waist
	House dress

COURSE IN MILLINERY.

Bandeaux	Bindings
Stitches	Trimming
Frames	Renovating
Covering	Designing
Facing, plain and shirred	Color combinations



FIG. 4. CLASS IN MILLINERY.

For Dressmaking were purchased during the four months

Bias banding	Lawn
Buttons	Muslin (bleached, unbleached and cross-bar)
Cambric	Needles (Machine and Cambric)
Chambray	Percale
Cotton	Pins
Elastic	Cotton poplin
Gingham	Tape
Embroidery	Thread
Hooks and eyes	Towelling
Lace	Waistings

amounting to about \$450.00 and sufficient to carry until September first.

For Millinery were purchased during the four months

Straw braid	Canton Flannel	Needles
Buckram	Lining	Thread
Cape net	Messaline	Ribbon
Chiffon	Mull	Velvetine
Crinoline	Net	Velvet
	Wire	

amounting to a little over \$100.00 and lasting thru the summer.

With equipment and supplies on hand we were ready for the girls. "We" consisted of three regular teachers—a millinery teacher, who could assist in sewing, and a dressmaker who had taught in evening and private sewing classes, and the one organizing the work. It was decided to open evening classes at once, as well as day ones, for many factory girls wanted to take advantage of this opportunity to learn womanly trade work. Over a hundred had applied for night work up to April 1st. Since room was limited, this number was reduced, by limitation as to day's employment, and seventy-five were enrolled, eight entering later. These were divided into two squads, fifteen for millinery came two nights a week, two classes in sewing the same two nights and three classes in sewing came two other evenings. We tried to limit the numbers to about twelve in attendance in each class. Two local dress-makers came in two evenings each week, and each of the day teachers took two evening classes, being relieved a corresponding time during the day. The evening classes opened April 15th and continued for twenty lessons when they closed for the summer.

The day class began with 19 pupils. April is not the time of year when many good girls are unemployed; they are either in school or at work. Two left positions to come; several came from neighboring towns, since it is a State Trade School. There were four day pupils for



FIG. 5. PART OF MILLINERY DISPLAY AT THE "OPENING," MARCH 21, 22, 1912.

Millinery and fifteen for Dressmaking; sixteen other girls were admitted later. After a few weeks an art teacher was found who had had practical training and she came in to give three lessons a week to the day classes.

Some of the girls had had previous training and quickly covered the first part of the course and were soon filling simple orders. The models in the course are such as any girl wants for her own use and most of the garments were bought by the girls, at cost of material, as they were completed, or sold to visitors at a fair profit. This meant that in four months \$262.24 was turned back, lessening the total expense of materials. During this time 625 articles were made and 67 orders filled such as underwear, aprons, shirt waists, skirts, house dresses, and hats.

The chief value of this sale of garments and taking orders is not a financial one but the effect upon the girl. She feels she is doing something of real worth, because it is useful; it must come up to a high standard since a price is paid for it; it must be done on the day promised, or before, to satisfy the customer; a greater variety of materials is brought into the workroom than could be afforded otherwise.

Besides handwork, there were lessons in arithmetic relating to the work of the trade; textile lessons accompanied the handling of material; art lessons to assist in line and design were begun and color was soon to follow. The health side was only touched; eyes had been examined by the pupil's own doctor and glasses obtained when necessary; exercises to rest backs had been provided from time to time. Several girls brought their lunches and a few had asked to be allowed to make a hot drink, pointing to cooking lessons as a future need.

So in a simple way all the essential features of a trade school had been begun. Four months is too short a time in which to show results by placing girls; there had been increased power in the girls and satisfactory work had been turned out. A promise of a good future loomed big.

August first the one in charge left to take up another line of work in Boston, that of training teachers for Trade Schools.

Miss Elizabeth Hess, who had been connected with the North Bennett Street Industrial School, Boston, was attracted to the New Britain School and came to it in September. Under her leadership the work has gone on developing normally, broadening its usefulness, turning out a workmanlike product and strengthening its pupils.

It is hoped this recital of the first four months may serve as a guide to others in organizing similar work, since such details show that the initial expense of a girls' department in a trade school is not prohibitive.

VOCATIONAL EDUCATION IN THE BOSTON PUBLIC SCHOOLS.

FRANK M. LEAVITT.

IT has been our purpose in preceding articles to describe rather fully three different kinds of industrial schools. There are other distinct types of equal importance a detailed study of which must be made if one wishes to gain any comprehension of the present movement in popular education. In subsequent articles we hope to describe illustrative examples of some of these types but it is believed that a clearer appreciation of the value of each kind of school will be gained if we examine an entire city system where practically all types of industrial schools and classes have had at least a partial trial. It is obvious that only the briefest outline of the several parts can be given if we are to see the system as a whole.

It may be a surprise to schoolmen in some parts of the country that the Boston schools should be taken as illustrative of educational progress. They have been accustomed to feel, and occasionally to say, that the Boston schools are conservative and unprogressive and that they are living on their past reputation. It is within the facts to say that anyone making such an assertion is not familiar with the progress which has been made by that system within the past ten years and that he mistakes for inaction the quiet and business-like efforts which the city has been making to adjust its educational institutions to the present needs of its children.

The lesson, however, is one of wider significance. The typical American is prone to feel that this country has little to learn from the older civilizations of Europe, that, in fact, the older of two communities must always be the less virile and the more inclined to be concerned with the past rather than with the future. This is not, however, usually the case. When a community advances to the position where its conditions become somewhat stable, aggressive individualism gives way to a greater sensitiveness to the interests of society as a whole, the people take a more personal interest in their institutions, and there is gradually brought about a more accurate adjustment of

these institutions to the diversified and somewhat permanent conditions of the several constituent parts of the community.

It is a case in point that, during the past decade, there has been forced upon us the conviction that the experiences of Germany, in developing her systems of industrial education, are full of valuable suggestions for the solution of our present industrial problems. Similarly one should expect to find in the more congested and industrialized communities of the eastern states a more careful reckoning with those conditions which it is evident can be changed only gradually and by purposeful effort. We believe that Boston has overlooked few of its children in developing the school system as it has during the last generation. Indeed it is to be doubted whether any city in the country has more readily responded to the demand to motivate education by a more rational attention to the vocational interests of its pupils, or has more willingly admitted the justice of this demand in the several units of its system. It is to the consideration of this progress in motivating education in the Boston Public Schools that we ask attention.

A thoro discussion of this subject would lead us back to the beginning of educational history in Massachusetts, but twenty-five years will give sufficient perspective. A quarter of a century ago the system had three clearly defined units, the Public Latin School, the high schools, and the common or grammar schools of nine grades. The first fitted for the university; the other two fitted for "life" each on its own plane. A large majority of children entering the common school had no intention whatever of going to high school and relatively few entering the high school planned to go to college.

Gradually the high schools enriched their courses of study and fitted not only for a wider field in the business world, but also fitted for colleges and technical schools. With the widening of opportunity afforded by the more and more diversified courses offered in the high schools, came the feeling that all children should have the benefit of at least a portion of the work given therein. This, perhaps more than any other consideration led to the abolition of the ninth grade of the elementary schools.

In all of these changes the vocational motive was more or less potent. That is to say the pupils were led to believe that any extension of their education would react in an important way on their future life work. The professions were to be gained by way of the Latin School; the high school led to the more attractive and more remun-

erative managerial positions; the elementary school diploma was commonly believed to have real value in introducing its holder to the best of what was left in the way of vocational opportunity. All pupils were urged to be ambitious and to climb as high on the educational ladder as possible.

This scheme of things served excellently all those who were certainly going to college and those who had reasonable prospects of successfully completing the high school course; but there still remained those who found the high school disappointing or who themselves were a disappointment to the high school faculty; those who looked upon the completion of the "grammar" school course as the attainment of their educational ambition; and perhaps the larger number who waited their fourteenth birthday to bring them release from a more or less distasteful confinement within the walls of the schoolhouse.

The major portion of the recent educational advance has very directly affected three rather distinct types of children;—the unsuccessful or uninterested high school pupil; the contented elementary school graduate; and the unprogressive and discouraged pupil who hardly expects to reach the eighth grade. It is our purpose to outline briefly the several features of the Boston school system which seem to have been addressed to the improvement of educational opportunities for these children. It is obviously impossible, within the limits of this article, to give detailed descriptions of the several examples which the system affords, but an attempt will be made to single out the distinguishing features which relate specifically to vocational education in any of its aspects.

THE MANUAL AND DOMESTIC ARTS.

In the first place it should be noted that Boston has made fuller provision for drawing, constructive work, and the domestic arts in the elementary grades than any other large city in the country. Practically one-sixth of the time of the elementary school is devoted to this work, and adequate provision is made for equipment, supplies, special instruction, and supervision, so that every boy and girl in the city may have the full benefit of the courses. While the best work is offered in the upper grades, which some retarded children never reach, there is a provision that any child over twelve years of age may be admitted to classes in the manual arts.

Some of the general high schools also offer good courses in drawing and manual training continuing for at least two years.

It is true that this work was not introduced into the schools for vocational reasons primarily, but there can be no doubt that it has had considerable vocational significance in the lives of many children.

VOCATIONAL COURSES AND THE HIGH SCHOOLS.

Educational advance in the United States has generally been brought about by first enriching the higher schools and then securing adaptations of the new courses for the lower schools, the more elementary work being considered as preparatory in its nature. We must, therefore, first examine the Boston high schools if we would fully appreciate the diversity of vocational training which has been made possible during the past generation. The mere listing of six of these higher schools shows something of this diversity: Public Latin School; Girls' Latin School; English High School; Mechanic Arts High School; High School of Commerce; High School of Practical Arts. The first three of the above schools are not "recent additions" but it is pertinent to note them briefly in connection with the subject of vocational education.

The Public Latin School: The Public Latin School (for boys) and the Girls' Latin School are open to children of the sixth grade when their parents affirm that the children are to have a college education. It is worthy of note that this is a "vocational opportunity" for all who are planning a professional career and that it is open to all such, whether boys or girls, at about the *twelfth year of age and in the sixth grade*. This fact is all the more significant when we reflect that practically all the high schools now offer college preparatory courses.

The English High School: While this school was originally established for boys who had no intention of going to college, and while it offers nearly all high school subjects excepting manual training, it has established the reputation of giving an especially good preparation for the Massachusetts Institute of Technology and other technical colleges.

The Mechanic Arts High School: The Mechanic Arts High School (for boys) is one of the best equipped manual training high schools in the country. The present controversy regarding the place and purpose of this school throws an interesting side light on our subject, and shows that there is unquestionably a serious difference of opinion regarding this question in the minds of responsible officials. Some of the city authorities declare that the primary purpose of its

founders was to establish an institution which would train elementary school graduates for the mechanical trades and industries, and that, instead, the school management has placed the major emphasis on preparation for higher technical schools. The defenders of the school's policies insist that the success of its past graduates justifies its methods and organization. At all events it is indicative of the interest which the Boston School Committee has in vocational education that, in the summer of 1910 it passed an order, the purport of which was to discourage the offering of college preparatory work in this school. Somewhat earlier a special committee, composed of business men, was appointed to examine and report on the school. After three years of careful study the committee recently reported, in part, as follows:

The advisory committee agreed that this school should develop in response to a widespread popular demand and an economic necessity, an industrial school of secondary rank that will supply the industries of the Boston district with young men of such adequate general and specifically industrial intelligence, knowledge, and imagination that the industries themselves may readily train them for efficient service as skilled mechanics, draftsmen and designers, foremen and superintendents, engineers, and in due time, industrial leaders in the many activities of the complex industrial life of today.

The school should, therefore, have a distinctive vocational character, consider only the needs and welfare of those who wish to or must earn their living in industry directly after leaving the school, and for these be an educational finality rather than an educational stepping stone to an institution of higher learning. The heretofore prevailing policy of preparing pupils of the Mechanic Arts High School for entrance into an engineering college as well as for the industries, should be given up frankly and completely; this dualism of aim has not, and probably cannot, do full justice to either.

"Grammar school graduates who seek entrance into the Mechanic Arts High School should clearly understand the single vocational function of the school," and only those who would in the opinion of the school authorities seem qualified for industrial work should be accepted for training in the school.

At the same time, however, arrangements should be made for a ready transfer to other high schools of pupils who during the first two years develop the desire for a subsequent college education, and of those who prove lack of the qualifications which are essential for a successful industrial career, but otherwise are capable and desirous of securing a general high school training. In either case transfers should not involve loss of time or effort on the part of the boys.

When once this policy has been clearly enunciated the spirit of the school will readily adapt itself to it and definiteness of the new purpose will soon permeate all instruction and give it increased vocational value.

We realize, of course that it may prove inexpedient, even if it should be found advisable, to carry out in full at the present time the program herewith

suggested; yet we consider it best to leave it to the school authorities to strike the proper balance between what should seem to us to be desirable and would seem to you to be practicable under present conditions.

Whatever may be the ultimate solution of the present difficulty it is evident that a determined effort is to be made to provide, for elementary school graduates, as complete and vital an education for the industrial vocations as it is possible to give in a secondary school.

The present plan of organization and the courses of study offered coincide so exactly with the traditional manual training high schools thruout the country that no detailed mention of them is here necessary.

The High School of Commerce: This school is one of the more recent additions to the system, having been organized in September, 1906. It purposes to give boys a thoro and specific preparation for progressive employment in commercial pursuits. The work differs from that usually included in the "commercial courses," so-called of the general high school which are, strictly speaking "clerical" rather than "commercial" in their nature.

The course of study includes the general group of subjects usually pursued in high schools, except ancient languages, but these subjects are all taught with the constant view of preparing the pupils to use them in business life. In addition two or more of the following are taken by all pupils: bookkeeping, accounting, typewriting, stenography, drawing, commercial design, chemistry, and auditing.

From ten to twenty lectures are given by laymen on each of the following topics: advertising, salesmanship, business organization, business survey of New England, economic resources of the United States.

One unique feature of the school is a special postgraduate course (fifth year), organized on a cooperative part-time basis, the boys working in the school in the morning and for their employers down-town in the afternoon. This course offers the following subjects: money and banking, corporation finance, transportation, labor problems, business organization, accounting, modern languages, industrial chemistry, and English.

A plan of summer apprenticeship for undergraduates has been in successful operation for some time. This was made possible by the cooperation of several merchants who were willing to give employment to the boys during the summer, allowing them to return to school in the fall. Thus by the part-time cooperative work, by the summer apprenticeship, and by carefully planned visits to business houses, the

practical side of commercial education has been brought well to the front, and has buttressed the theoretical, the informational, and the cultural work of the school. The Fifth Annual Report of the Advisory Committee contains the following paragraphs:

Practical Work. The past year has seen an increase in the amount of practical work done in business establishments by the pupils in connection with the work of the school.

The summer work is carried on as outlined in the last report. During the summer of 1911, 352 boys of the three upper classes worked under this summer apprenticeship scheme: that figure represented about 66 per cent. of the enrolment of these classes. In the two upper classes, 218 or 75 per cent. of the total enrolment worked. In the senior class 108, or 88 per cent. of the class worked.

About thirty boys worked during the year on a part time scheme. They spent the earlier part of the day in the school and at hours between 10:30 and 2:00 left to take up work in business houses. It is the hope of those intrusted with the management of the school that this feature of its work will increase.

The new building now under construction will be located in the business district and it is planned to bring about still closer cooperation between the school and the future employers of the boys.

The school is in session six hours a day.

The High School of Practical Arts: This school, organized in September, 1907, is intended to provide, for the girls, practical courses of an appropriate nature and, therefore, to parallel, in a measure, the Mechanic Arts High School for boys. The work given has less reference to the vocations of women than to their probable future domestic needs, yet it is not without trade significance.

The course of study includes English, literature, history, German or French, arithmetic, algebra, plane geometry, chemistry, physics, biology, and hygiene, as well as art, domestic science, and trade courses in millinery and dressmaking. During the first year the course is uniformly required of all pupils and includes sewing, housewifery, and a thoro practice in home cooking. While elementary school graduates only are admitted to the school, no attempt is made to give specific preparation for college. The daily session is five and one-quarter hours and the school building is open until four o'clock to afford all pupils desiring it, an opportunity for supervised study or work.

In addition to the well equipped laboratories of the school a dwelling house, located nearby, is provided and in it general housekeeping is taught. This school "home" has all the rooms commonly found in a typical middle-class dwelling and the instruction given therein comprehends almost every activity of family life.

One of the extremely practical activities carried on within the school is the furnishing of the school luncheons. Each day this work is in charge of a small group of girls who have the full responsibility of preparing the menu, of fixing the price on each dish, of purchasing, preparing, and serving the food, and of clearing away the remains of the feast, leaving all in readiness for the next day. The writer has partaken of these luncheons and can testify to their superior quality and their low cost.

The trade courses in millinery and dressmaking are conducted with as close an approximation to the actual practices which obtain in high grade establishments as possible.

In all courses drawing plays a most important part and is given with great thoroughness. In fact it occupies a central place in all the arts and industries taught. The school's catalog contains the following:

Art. The purpose of this department is the cultivation of taste thru a study of the principles of beauty and their application to the problems of dress and the home.

The course includes the study of representation which stimulates observation and expression; construction, which teaches the facts of form and the method of making drawings for the workshop; mechanical drawing, which necessitates accuracy in measuring; composition and design, which include the analytical study of the principles of beauty and color harmony; costume design in its many phases, with special reference to the individual. Household decoration and furnishing are emphasized features of the course.

Special Courses in General High Schools: In addition to these specialized high schools four of the general high schools have inaugurated independent courses of a specialized and vocational type, but these courses have not met with marked success. The reasons for this failure are not germane to our discussion but the fact that the courses were attempted bears evidence to the interest in vocational education which the school authorities have shown. These experimental classes are as follows:

In the East Boston High School a class in jewelry and silversmithing was formed. The work was carried on outside of school hours and was open only to pupils regularly enrolled and carrying full courses in that school and who had had one year of drawing. Boston offers some vocational opportunity in this line of work.

In the Charlestown High School a class in electrical manufacture was established under about the same and almost prohibitory conditions, and in the Dorchester High School a class in constructive and decorative design.

In the Roxbury High School work of a specialized clerical character was introduced. Girls who have become interested in such work, thru their experience with the commercial courses in this or in other high schools of the city, and who have decided, for example, to become stenographers, may enter these classes and specialize in shorthand and type-writing exactly as they would if they entered a so-called "commercial college." A special feature is made of giving considerable practice for the purpose of developing speed and accuracy. The work leads to a *position* rather than to a *diploma*.

All classes such as these will reach their greatest usefulness by serving those pupils who desire to spend only one or two years in the high school.

A NEW TYPE OF SECONDARY SCHOOL.

All of the high schools described above admit pupils only upon graduation from the elementary school. It has been recognized, however, that many children reach the secondary period in their physical and social development without having fulfilled all the educational requirements for admission to the traditional high school. Boston has established two separate industrial schools which partially meet the needs of these children. The schools are, in a measure "secondary" if not "high" and, like the Newton Independent Industrial School, described in the last issue of VOCATIONAL EDUCATION are organized under the Massachusetts Statutes of 1906. They are, therefore, open to children fourteen years of age or over who desire to enter them, and who are able to secure a working certificate.

*The Girls' Trade School.*¹ This school was started as a private experiment in trade education for girls who were compelled to become wage earners at the earliest possible opportunity. Five years later it was taken over by the public school system and organized, as above noted, under the State law providing for joint state and local support.

The courses offered include dressmaking, millinery, machine operating, and straw machine operating. The pupil is expected to make her choice from these courses and to specialize in the trade chosen. All girls study, in addition to the trade selected, spelling, business forms, business English, and accounts. Drawing, textiles, color and design, as related to the trade are also studied. In addition each girl must take a little physical training and cooking, and receive

¹ While called a trade school we should prefer to classify it as a separate industrial school. See previous articles in the series.

some instruction in personal hygiene. Only a limited amount of time can be afforded the related studies, however, and the major emphasis is placed on skill, speed, and resourcefulness in the trade processes.

The school is in session for seven and one-half hours daily five days a week and essentially during the entire year for those pupils desiring to work continuously.

The trade experience is gained by working on a real product much of which has been secured on orders. An announcement of the "Spring Opening" of the school contains, among others, the following statements:

ORDERS TAKEN FOR

Children's Dresses	Gowns of Cloth, Silk and Linen
Russian and Blouse Suits	Hats of Fancy Braids and Chiffons
Coats, Caps, Bonnets	Walking Hats a specialty, made on our own straw machines
Layettes and Underwear	Latest Models in Doll's Hats
Fancy Neckwear	Fancy Aprons of all kinds
Hand and Machine Made Underwear	Men's Negligee Shirts, Pajamas
Shirt-Waists, Lingerie Blouses and Tub Dresses	Women's ready-to-wear Shirt-Waists

Last year the trade order work of the school amounted to upwards of \$9,000.00.

An extremely important feature of the school is the provision for giving assistance to the girls in securing and holding good positions. There are two "vocational assistants" who give no instruction in the school but who visit the industrial establishments, and, in some instances, the homes of the girls. Theirs is the important duty of coordinating the interests of these three institutions, the home, the school, and the shop. They are able to give valuable suggestions to the management of the school, and vocational advice to the pupils before entering the industry, and also to give guidance and assistance to the girls in their initial shop experience. In many instances children are helped over the hard places and the employers are not unmindful of the fact that the City of Boston, thru its authorized representative, is interested in the welfare of the young workers. Sometimes the children are advised to return to the school for an additional period of instruction. An initial wage of \$6.00 a week is the minimum which the school advises or, so far as it has authority, allows its pupils to accept except in rare instances. The actual initial wage of the girls on leaving the school is somewhat less, probably about \$5.70.

The length of time which a girl spends in the school is an individual matter but at least one year is desired by the management.

The Industrial School for Boys: This is the most recently established of Boston's vocational schools, and is planned to serve the needs of boys who must make an early entry into industrial life and who can not reach or do not desire the courses offered in the high schools.

Courses are planned in woodworking, machine-shopwork, electrical work, sheet metalwork, printing, and bookbinding. Instruction in the applied technical branches and in the related study work includes drawing, applied science, shop mathematics, English, industrial history, industrial and commercial geography, and citizenship.

The school is in session seven hours a day for five days a week. It has been so recently organized that nothing can be said regarding its results or its relation to the industrial establishments of the city.

PRE-VOCATIONAL WORK OR INDUSTRIAL COURSES IN THE GRADES.

Of greatest importance, when viewed from the standpoint of vitalizing the education of that large group of children who leave school before completing the work of the eighth grade, is the organization of pre-vocational centers. The history of this movement extends over the past five years and has culminated in the passage of the following orders by the School Committee:

ORDERED, That special industrial classes now conducted in the Agassiz, Oliver Wendell Holmes and Quincy Districts are hereby established as pre-vocational centers to take effect Feb. 1, 1912.

A communication was received from the Superintendent, under date of Jan. 29, 1912, stating that subject to the approval of the Board, he establishes pre-vocational centers in the Sherwin and Lewis Districts to take effect Feb. 1, 1912, and in the U. S. Grant District to take effect April 1, 1912.

Placed on file, and the establishment of the pre-vocational centers approved.

These pre-vocational centers are so organized that the industrial work occupies from one-quarter to one-half of each school day. The projects made are needed and used by the school department, thus introducing an element of utility and reality which is highly beneficial to the pupils. Each center has its own special activity and this has now been officially recognized by action of the Board of Superintendents. The industrial subjects and the projects to be made are outlined as follows:

Agassiz Center. Box Making and Woodworking.

Such work as plain and covered paper boxes, Harvard covers, portfolios, clay modeling boards, looms, type solids, etc.

Oliver Wendell Holmes Center. Woodworking.

Such projects as foot stools, shadow boxes, test-tube racks, looms, elementary manual training equipment, trays, etc.

Quincy Center. Machine-Shopwork.

Such projects as step ladder and loom fixtures, tree guards, adjustable desk and electrical fittings for use by Schoolhouse Commission, blackboard ruler handles, drawing stand fixtures, etc.

Sherwin Center. Sheet Metalworking.

Such projects as drawer pulls, ink fillers, sheet metal ware for cooking rooms, pans for radiators, umbrella stands, etc.

Lewis Center. Printing.

Such work as school cards and blanks, spelling lists, etc.

Ulysses S. Grant Center. Bookbinding.

Such work as Harvard covers, repairing and rebinding old books, binding new books purchased in flat, making blank books, booklets, etc.

This legislation gives definite place and purpose to work which has been under way, experimentally, for some time. The first of the above mentioned centers was organized in September, 1907, and the second and third were started a year later. The centers for sheet metalwork, for printing, and for bookbinding have not yet been opened, but the plans for them are quite fully developed.

This pre-vocational work is for children between 12 and 14 years of age regardless of grade, when parents and teachers agree that it can be taken by them with greater benefit than the regular elementary school course. It is intended primarily for those pupils who having arrived at the age of 12 are found to be hopelessly below grade or who are unresponsive to the ordinary stimuli of the elementary school work.

These schools do not prevent later entrance to the high school, but for many children prove to be the only effective means for gaining entrance to it since they would otherwise be unable to complete the course in the elementary school.

In 1907 one of these pre-vocational classes was established with a membership of fifty boys of the sixth grade. At the end of the third year, thirty-eight of the original fifty graduated from the elementary school, and the following year twenty-four of these entered high school, ten going to the Mechanic Arts High, three to the English High, two to the Public Latin School, two to the High School of Commerce, and seven to the general local high schools.

One who is familiar with school statistics will see that this class graduated a much larger percentage of children and that a larger percentage of these graduates entered high school than is commonly the case in any large city in the country.

Pre-vocational work does not offer, however, as so many believe, "blind alley" courses for those who fail to reach the high school. They show the boys the advantage of one or two additional years in the industrial school now open to them after their fourteenth birthday. Even to those who cannot afford to go to the Industrial School for Boys the course has done something since it enables the boys to enter their vocational life with a clearer understanding of its duties and difficulties and with a better chance of adjusting themselves to its demands.

Pre-vocational Work for Girls: It may be observed that these pre-vocational centers are for boys only. This is partly due to the fact that the training best suited to the needs of the girls at this age (twelve to fourteen years) is probably domestic rather than industrial in its nature, and partly because the supervision of the manual training for boys, and cooking and sewing for girls are under different directors. The girl has not been overlooked, however, in the readjustment of educational opportunities. One experiment which practically parallels the pre-vocational work for boys is that which has been worked out at the Lyman School, East Boston. In this instance a flat was rented and was so equipped as to make practicable the giving of instruction and practice in most of the actual work connected with home making and housekeeping, including sewing and general dressmaking.

CONTINUATION SCHOOLS.

It should be noted that all the educational progress thus far described, excepting the development of the Girls' Trade School and the Industrial School for Boys has been brought about by extending or readjusting the traditional school systems.

Boston has also responded to the demand for "continuation schools" for those who leave school and are actually engaged in the world's work. The city has long maintained a system of evening schools and within three years it has added to these several day schools meeting for a few hours a week. All of these educational opportunities for people already at work have been brought under one official, the Director of Evening Continuation Schools. Much of the school work open to both girls and boys in the regular elementary and high schools is made available in the evening for such pupils as can profitably pursue it. This is true both of the academic and the vocational work, the latter including instruction in such subjects as the following: architectural, machine and freehand drawing; sheet metal pattern drafting; automobile and car-

riage body designing; steam engineering for firemen, engineers, and janitors; forging, machine-shop practice; pattern-making; electricity; interior decorating; printing; plumbing; sign painting; courses in cloth machine operating; straw machine operating; cooking; and household management, and economics. In addition to this, however, the day "continuation schools" offer specialized instruction closely related to the vocations of their pupils and open to those whose employers allow them to attend during working hours without loss of pay.

The two continuation schools most recently established are first, a school for home-making and house-keeping for young women and girls who are employed in the unprogressive industries; and, second, a day school where foreigners may study the English language.

The following outlines indicate briefly the scope of work in each subject:

SHOE AND LEATHER.

The production and distribution of leather; tanning processes; leather manufacture; recognition of kinds, grades, and comparative values of leather; manufacture and classification of shoes; salesmanship; efficiency training; visits to industrial plants.

DRY GOODS.

Fibers; cotton and cotton goods; wool, worsteds and woolens; silk and silk fabrics; linen and linen fabrics; recognition and comparison of mixed fabrics; simple tests for determining quality; coloring materials and color preservation; shrinking; mercerization; non-inflammable fabrics; care of stock; salesmanship; efficiency training.

BANKING.

Brief history of banking; different classes of banks and their relation to each other; department work; correspondence; notes,—usury, protest, discount; currency; foreign monetary systems; circulation; credit; clearing houses; stocks and bonds; brokers; the Stock Exchange; foreign and domestic exchange; funds and funding systems; efficiency training.

SALESMANSHIP.

Brief review of subjects found under preparatory salesmanship; store system; the psychology of the sale; demonstrations efficiency training.

PREPARATORY SALESMANSHIP.

Commercial correspondence; facility in oral and written expression; store arithmetic; sales slip practice; sources of merchandise and its distribution; raw materials; textiles; penmanship; color and design; hygiene; talks on the fundamental principles of success; salesmanship.

VOCATIONAL GUIDANCE.

Perhaps nothing has so well served to indicate Boston's determination to make its educational institutions administer to the vocational

well-being of its children as has the development of a systematic plan of vocational guidance.

A moment's reflection will show that a system of guidance is necessary wherever the school offers such varied possibilities. To leave the children without guidance in making their choice of the several educational opportunities would be to invite defeat for the plan of diversified schools. The "misfits" might be quite as numerous and the ultimate educational results be even more disastrous than where all children are compelled to pursue the one traditional "cultural" course of study.

The system of vocational guidance in the Boston schools provides, first of all, for the direction of the pupil in selecting courses of study or in determining which school will best serve his interests and his needs. In each elementary and in each high school there is at least one "vocational counselor." It is true that these counselors are appointed to serve without extra compensation, but, being chosen from among the progressive teachers, they spend considerable time in studying the situation, in conferring with each other and with the Boston Vocation Bureau, and in advising with the pupils under their charge. From time to time different teachers have been relieved of their regular work to undertake some assigned investigation of vocational questions in relation to education.

Boston is fortunate in having the Vocation Bureau, referred to above. This is a private, philanthropic institution, but it serves the public schools by cooperating with the Vocation Direction Committee composed of masters and sub-masters, by preparing material for the use of the vocational counselors and of the pupils and parents whom they serve, and by holding, in one of the school buildings, a school for vocational counselors where all who are interested in this important work may reach a better understanding of its requirements.

In addition to these unpaid counselors the regulations of the School Committee allow one paid "vocational assistant" for each one hundred pupils in the vocational schools. The duties of these vocational assistants were briefly outlined in the description of the Girls' Trade School given above.

It will be observed that vocational guidance in the Boston schools falls under three rather distinct classifications: the giving of advice to pupils within the school system as to choice of schools and courses; the placement of pupils when they are ready to assume the vocational

responsibilities of life; and the giving of such subsequent assistance as the young worker may need in adjusting himself to the requirements of his new surroundings. The school authorities themselves would not claim that a complete system has been devised, but there can be no doubt that substantial progress toward this end has been made.

THE EFFECT ON THE SCHOOL SYSTEM.

To determine the results of this thoro-going utilization of the vocational motive in education would be, obviously, an extremely difficult matter. So far as the opinions of those who are competent to speak for the Boston schools is concerned there is nothing to be said which is not encouraging. Not only have the pupils who have entered the newer types of educational work advanced farther than would have been possible under the older regime, but there is to be observed a certain reaction on the system as a whole, a "keying-up" of things in general. It is not only the experience of Boston, but it is the common experience of all communities where the vocational influence has permeated the schools, that *efficiency* the great word in modern industrial life, has been placed side by side with *culture*, to which Boston was once supposed to have a somewhat exclusive title, to the great mutual advantage of both culture and efficiency.

THE MOVEMENT FOR INDUSTRIAL EDUCATION IS DOOMED TO FAIL OF ITS GREAT PURPOSE UNLESS YOU TAKE ACCOUNT OF THE GIRLS. YOU CANNOT PUT THEM WHERE THEIR GRANDMOTHERS WERE AND YET TAKE TO YOURSELVES THE SPINNING AND WEAVING AND SOAPMAKING. THERE WAS ALWAYS SOMETHING TO DO, NOW THERE IS ONLY SOMETHING TO BE DONE.—Ellen H. Richards.

PRE-VOCATIONAL WORK A PREVENTIVE OF DELINQUENCY. THE OUNCE OF PREVENTION.

WILSON H. HENDERSON.

YESTERDAY evening we were told in a very interesting way some of the methods that are used to reform bad boys; how, after a boy has been allowed to become a menace to society, he is locked up and an effort is made to rectify that which has been done. I am of the opinion that if the state would put forth an equal effort in another way, it would not be necessary to apply this entire pound of cure.

This morning I wish to tell you of an experiment that is being made in Springfield this year and of the things that are being accomplished. When this school which will be described, was first proposed, there was no thought of making it a school for bad boys; in fact a special effort was made to keep bad boys away from it. This experiment is an honest effort to meet conditions as they exist in nearly every city. It is still a little early to state results, but I will tell you of our experience and the conclusions that we have drawn from it.

In the latter part of May, 1911, a census was taken of the boys in the six grammar schools in the eastern part of the city and it was found that of the total number of 1,375 boys in these schools, only 55 were in the eighth grade. This showed that two-thirds of the boys left school without completing the elementary grades. Among those who left were some who left by special request on account of troubles therein. These fellows could not go to work until they were fourteen, so were just loafing. These boys in company with some over fourteen who were not working, were spending their time dodging the truant officer and the probation officer of the Juvenile Court. About once a month one of them was sent to the State Reformatory or to the State Training School for Boys at St. Charles. But a large number of the boys were working in factories, mines, and stores, doing work requiring no skill or training, and receiving from two to four dollars a week.

Contrary to the theory that a child will enter school at six, complete a grade each year, and by the time he is fourteen will have completed the elementary school, we found that a majority of the boys were fourteen and out of school before they reached the seventh grade, and were going out into the world unprepared to make a living.



FIG. 1. THE PRINTING SHOP.

We have had manual training in the elementary schools for some time and the number of boys in the upper grammar grades is larger than before, but we do not expect manual training to contribute much toward industrial efficiency in the hour-and-a-half a week that is allowed for it.

We also have manual training in the high school and have quite an elaborate equipment but we carefully preserve it from these boys who need it the most by our entrance requirements. To keep on the accredited list of the universities, we teach so many other things that we cannot allow a boy to spend more than 80 minutes a day in the shops and drawing classes. In the four years we are expected to teach the subjects of woodwork, turning, cabinet-making, pattern-making, forging, machine-shop practice, and mechanical drawing. It seems incredible that anyone should have expected such a course to turn out a boy industrially efficient.

A PRE-VOCATIONAL SCHOOL.

To meet the conditions that existed, the supervisor of manual training in his annual report, recommended that provision be made for a school for pre-vocational work as follows: "The Board of Education is to appropriate a sum not to exceed \$2,000 and is to allow the time of a seventh or eighth grade teacher. You will note that this teacher would be needed if this school were not established. We will start with two classes of twenty boys who are to work in the shop one-half of each day and the other half in the regular schoolroom. As it costs the city \$160 to put a pupil thru the high school, it will be evident to you that the boy who cannot go thru the high school is entitled to more in the elementary school than the boy who gets the \$160 in schooling.

The work in the shop is to consist of printing and bookbinding to be taught by a practical union printer. The work in the schoolroom is to be such as the boys will need in industrial work of any kind. The boys will be taught to keep account of the cost in time and material of every job that is completed in the shop. They will also be taught to keep stock-lists, time-sheets, to figure cost when discounts are allowed, and will be taught the entire routine of a first class commercial establishment. We will not need to go outside of the schools to find plenty of work for the boys to do, as there are hundreds of books that need rebinding, and an immense amount of printing which the Board wants done.

Any boy who has completed the first five grades will be admitted to this school upon the written application of his parents stating that he

is thirteen years of age or over and that they do not intend to send him to high school."

This recommendation caused some discussion. The admitting of boys to such a school before the age of fourteen was questioned but we

Job Ticket				
SPRINGFIELD VOCATIONAL SCHOOL				
Job No.	153			
For whom	Domestic Science Dept			
Composition	3	Hrs	30	Min
Lock Up		Hrs	30	Min
Press		Hrs	30	Min
Preparing Stock		Hrs	30	Min
Folding		Hrs		Min
Packing		Hrs		Min
Binding		Hrs		Min
Amount charged for job			\$ 2.50	
Cost of material	10 sheets @ 1¢		\$.10	
Profit	40%		\$.00	
Value of labor			\$ 1.40	
Value of labor per hour			\$.28	
This blank must be filed out for each job that is completed in the shop.				

FIG. 2. JOB TICKET.

decided that if the school is to do the boys any good, it must do it while they are there, not after they have left. The idea that this would be "child labor" was also advanced, but if boys are to work nine or ten hours a day six days a week, as soon as they are fourteen, it will not hurt them to work three hours a day, five days a week, a few months before they are fourteen.

The proposition was finally accepted and two rooms were fitted up on the third floor of the Bunn School building in a part of the building

that was intended for an auditorium but had not been finished. A complete outfit for a small printing and bookbinding establishment was purchased for \$950 and installed in one of the rooms. The other room was furnished with twenty desks, a long reading table, and the para-

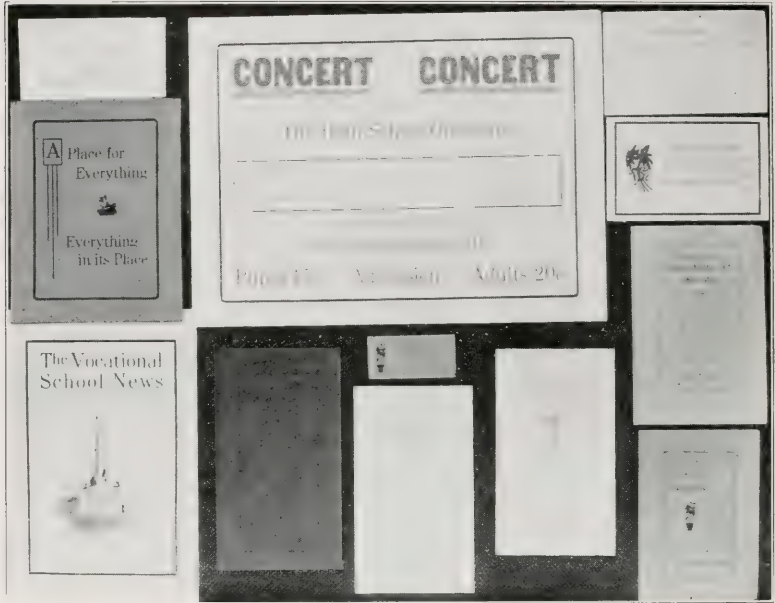


FIG. 3 WORK OF PUPILS IN THE PRINTING SHOP.

phernalia usually found in a schoolroom. The place is called the "Vocational School" and is in direct charge of the supervisor of manual training.

A union printer who had formerly operated a printing plant was employed for \$90 a month and a teacher who was familiar with the work of the higher grammar grades was assigned to the school at a salary of \$75 a month. A number of magazines devoted to things in which boys are interested, were ordered for the reading table, and the school opened the first Tuesday in September.

The first day seven boys enrolled. The next day seven more came and one more the following day, and these fifteen were the total enrolment for the first month and a half. Principals of grammar schools were told not to send the bad boys and the sluggards, but they did not

want to part with the good ones. The enrolment in their upper grades was too small already and investigations were being made to ascertain the cause of the elimination. There were other reasons for the small enrolment. Parents did not understand the purpose of the school. Practical workmen assume a superior air toward "school mechanics" so they would not send their boys. The school is located a considerable distance from the central part of the city and in a section where the boys have to go to work at the earliest possible age.

About the middle of October we became desperate. One or two members of the Board of Education were complaining of the cost per pupil. So we threw the doors open and offered to take any boys regardless of their past records. Immediately we enrolled five boys, incorrigibles, wards of the Juvenile Court, one of whom had served two years in the St. Charles Reformatory. One boy from the county detention home had a fight the first day and cut another boy in the head with a knife. We expected trouble and for a few days we had it—plus.

The principal of the Bunn School objected to having the boys come to her building. The printer complained that they were stealing type from the cases, and the teacher of academic subjects asked to have a wash basin installed. By the last of December, there were twenty-eight boys enrolled, eight of whom had previously been in trouble and were under the supervision of the probation officer of the Juvenile Court. One boy had run away from the Home for the Friendless because he did not want to be sent to the common grade school. It is interesting to note that this boy has not been absent a day since the second week of school, altho the home is nearly two miles from the school.

Three other boys come over two miles to the school altho there is another school within six squares of their homes. One carries morning papers and has to get up every morning at three o'clock. Another delivers meat mornings and evenings. We found that one little fellow comes almost every morning without his breakfast. In the homes of two, they have no butter as it is expensive. The boy from the detention home became very much interested in his school work, and the matron of the home said that the only threat that was at all effective was the threat to keep him home from school.

One day a boy came with tears in his eyes and told his teacher that he would have to leave school and go to work. He felt so bad about it that we made a few inquiries about his home conditions. His father died

before the boy was born, and the mother died at the time of his birth. An uncle who is an operative in a factory is giving the boy a home. He appreciates what the school is doing for the boy, but there was sickness in the family and it was impossible to buy clothing. At that time the Board of Education was needing an assistant janitor for the school building so an arrangement was made whereby the boy could sweep and keep the two schoolrooms in order for seven dollars a month. He is still in school and the rooms never were so clean.

One boy was carrying messages in the afternoons and evenings at four dollars a week, and came to the school in the mornings for the instruction in printing. In a few months he went to work feeding a press in one of the newspaper offices at nine dollars a week.

ATTITUDE OF THE PUPILS.

The full details of the inside workings of the school would perhaps be uninteresting. I think I am safe in saying that there are at present no bad boys in the school altho all the juvenile court boys are there. There are several reasons for this. The boys have an attitude toward this school different from the attitude toward the other schools. None of them is compelled to come to school, so that if they were not interested in their school they would not be there. The making of a living will soon be a vital question with them and they are anxious to get everything which will help them when they go to work.

A speaker in a recent educational meeting expressed this sentiment, "God forbid that we should intrude upon infancy the cares and labors of the shop and factory." I say "Amen," but God forbid that we prolong the helplessness of infancy of children who go hungry and half-clothed, or that we suppress the manhood of the boy who longs to help make the living of the family supported by the labors of the mother who washes or scrubs for \$1.25 a day.

Protests against industrial training in the elementary schools are coming from a number of school men. These men are intensely interested in their schools and are making every effort to keep the boys in the higher grades. In fact they are so engrossed in their schools that they do not see the boys that are outside of the schools. For every child in the eighth grade, there are three children of school age who go to work before they reach that grade. We do not want to drag children into the industries, but we do hope to draw them out of the industries back into the school.

We have heard some objections from the typographical union, and a correspondent of the *International Typographical Union Journal* referred to our little school as a "breeding place for strike-breakers." The local union appointed a committee to wait upon the Board of Education to ask that the school be discontinued. We have also had complaints from some of the printing establishments that we were taking profits away from them, and taking the bread out of the mouths of union men. The facts are that when the union printer that we have employed as an instructor, was in a commercial plant, he turned out \$300 worth of work in a month, and in our school shop we turned out \$276 worth in five months and the printer is receiving more pay than he did in the trade.

The fact that the union men and the commercial men do complain of the school is very good evidence that the school is doing good work and that the boys are learning the printers' trade. Nevertheless, my advice to anyone thinking of starting such a school, would be to try something besides printing as the newspapers nearly all do job work and they will be unfriendly to you if you take thirty cents of profit from them. Furthermore they have the means wherewith to advertise their displeasure.

The best element in the labor union believes that a combination for the restriction of education is more un-American than a combination for the restriction of trade. A violation of the law forbidding the latter combination renders the violators liable to a sentence in the Federal prison.

WHAT IS BEING ACCOMPLISHED.

While there has not been the enrolment in our school that we hoped to have, we consider this school a success, and well worth the effort. It is accomplishing a number of things. It is focusing the attention of the thinking element in the community on the need of industrial education. The mothers in one of the most needy districts held a meeting, and at their request, I was present and told them of the work we are doing and what we hope to accomplish. They petitioned the Board of Education to erect a new building in their district and that the school be made vocational for girls as well as boys. It is forcing school men to sit up and take notice, as it has shown that because a boy is not interested in the rules of grammar or the battles of the Mexican war is not sufficient reason for treating him like a criminal. Our school has kept two or three boys out of the state institutions, and has prevented

others from becoming delinquent. The results of one experiment do not prove a theory, but there are other schools in the state, which have been in existence long enough to be beyond the experimental stage, which do prove the same theory. I refer to the State Training School for Boys at St. Charles, and the State Reformatory at Pontiac. In both of these schools the plan of instruction is to have the boys work in the shop or farm one-half of the day and in the school the other half.

Statistics show that 77 per cent. of the boys who serve time in the State Reformatory make good after their release, which speaks well for the efficacy of the training. A still larger per cent. would make good were it not for the stigma that society places upon the reformatory boy. If, then, we could supply the same training without the stigma, should we not expect excellent results?

Dr. Virden of the State Board of Administration, who has charge of the children in the state institutions is authority for the statement that the average age of boys committed to the St. Charles school is between 14 and 15. There are a few boys ten years of age in both the St. Charles and the Pontiac institutions. In reply to my question as to the chief cause of delinquency, Dr. Virden stated unhesitatingly, "Idleness; there is nothing truer than the old saying 'an idle brain is the devil's workshop' and if nothing is provided for a boy to do, he will find it for himself."

Judge Russell, in the last bi-ennial report of the State Reformatory says, "Idleness is the bane of social order. It is an insidious foe of the state. The idler is a useless non-entity, an enemy of progress, a most undesirable citizen. He is a corrupter of youth, a destroyer of manhood. Society cannot afford to tolerate the idler, much less to permit its boys to develop into mendicants, parasites, and criminals."

Some statistics regarding the inmates of the state institutions may assist in ascertaining the cause of delinquency. Of the even 500 boys who were committed to the State Reformatory in the two years ending July 1, 1910, eight, or less than two per cent., had gone to school beyond the eighth grade; less than fourteen per cent. had gone beyond the sixth grade.

The chaplain of the State Penitentiary at Joliet in his last report states; "Of the 1,137 reporting on their early education, it appears that 35 reached only the second grade; 97 the third grade; 139 the fourth grade; 141 the fifth grade; 62 the seventh grade; 155 the eighth grade; 57 attended high school, and twenty attended college.

These figures show very conclusively that our delinquents come from among those boys who leave school at or before the age of fourteen without completing even the elementary school. The fact that such a large percentage of these boys make good after a term in the reformatory suggests that if they could be kept in school, they might not become delinquent, if in the school we could give them the same training that they receive in the reformatory.

After watching the progress of the boys in our school, Judge Weaver of the Juvenile Court stated that he would not commit a boy to either of the state institutions for delinquent boys, if we could take care of them at home. That seemed reasonable, but if we take care of those boys who otherwise would be sent to one of the state institutions, why shouldn't the state pay the bill? The net per capita cost in the Pontiac reformatory as given in the last bi-ennial report is \$182.76 per year; in the St. Charles school, \$204.29; so for every boy that we keep out of one of these institutions we save the state at least \$182, besides the cost of committing him, and the railroad fare conveying him there, which amounts to at least \$75.

The last General Assembly passed a bill enabling school directors and boards of Education to "establish and maintain classes and schools for delinquent children committed by courts of competent jurisdiction, and providing for the payment from the State Treasury of the excess cost of maintaining the said classes and schools over the cost of maintaining and operating elementary schools for normal children, provided that such excess cost shall not exceed \$190 per pupil." The state thus recognizes that it is worth \$190 to the state to have a delinquent child in school.

The net cost per pupil in our pre-vocational school is less than \$60 per year or about one third of the cost in the state institutions. This means that three boys can be taught in such a school as has been described for what it costs to keep one boy in the reformatory. This statement is in no way derogatory to the state institutions as they must board and clothe the boys. However if our school were operating at its capacity the per capita cost would be \$45 a year.

The annual appropriations made by the last General Assembly for the care and safe-keeping of criminals were as follows:

State Penitentiary at Joliet.....	\$300,000
Southern Illinois State Penitentiary at Chester.....	235,350
State Reformatory at Pontiac	210,700
Conveying prisoners to penal institutions	54,000

Fugitives from justice and rewards for arrests.....	21,000
Board of Prison Industries	12,000
Board of Pardons	4,730
Amount expended for year closing Sept. 1, 1911, St.	
Charles Training School for Boys.....	140,468
Geneva Training School for Girls	117,381
Total cost to the state of its criminals for one year...	\$1,095,629

The number of inmates in the Pontiac reformatory is 700; in the two penitentiaries November 10, 1911, was 2,550; in the Geneva school September 1, 1911, 496 and in the St. Charles school at the same time, 492; making a total population of 4,226. Dividing the total appropriations by the number of inmates, we find an annual appropriation of \$258 per inmate. When we consider that the 2,550 men confined in the penitentiaries could be productive factors in the state, instead of an expense, the loss to the state is many times the figures given.

The amount expended by counties and cities of the state for the care and safe-keeping of criminals is very much more than the amount expended by the state.

The theory of the state's attitude toward education seems to be "unto him that hath, shall be given." The amount appropriated annually by the state for the State University is over \$400 for every student, and the annual appropriation for the common schools less than \$2 per pupil. The total amount expended by school districts and cities in Illinois for the maintenance of schools in the year closing June 30, 1911, was \$30,418,500. The total enrolment in the public schools was 1,002,687 which makes the cost per pupil in the public schools a little over \$30 of which the state pays less than \$2.

The state provides a magnificent university, of which we are all justly proud, for high school graduates who wish to enter the professions and for college graduates who wish to do graduate work. It also provides excellent normal schools in which common school graduates may be prepared to teach school, but provides nothing for the ordinary boy of fourteen who, from necessity, enters the industrial world.

This boy must meet the competition of foreigners with a low standard of living, and automatic machines which never tire, yet the state gives him nothing with which to meet this competition. It provides schools in which the boy who is to enter the professions is prepared to meet the competition of the world, demanding as a prerequisite, a training which of itself is far superior to that of the less fortunate boy who must go to work at fourteen. When a boy becomes delinquent and

a menace to the state, it provides excellent schools in which the results of the neglect may be partially overcome, but which mark a boy for life.

RESPONSIBILITY OF THE STATE.

In some hospitals for the treatment of mental disorders, a test of a patient's condition is made by opening a faucet which allows the water to run on to the floor and the patient is told to mop up the water. If he mops away without closing the faucet, his case is regarded as serious. At the present time the state is mopping with the faucet wide open.

Cities and counties are doing the same thing, but there is a law which provides "that all persons under the age of twenty-one years shall be considered wards of the *state* and their persons shall be subject to the care, guardianship, and control of the *state*."

The 44th General Assembly passed a law providing that "Any parent or parents, or *legal guardian*, or person having custody of any dependent, *neglected*, or delinquent child who shall, when able to do so, wilfully neglect to do that which will directly tend to prevent such state of dependency, neglect or delinquency, or to remove the conditions which render such child either a neglected, dependent or delinquent child, as aforesaid, shall be deemed guilty of a misdemeanor."

It is evident that the state, the self appointed guardian of all the children in the state, is guilty of a misdemeanor in failing to provide for those boys and girls who must join the ranks of the wage-earners at an early age, such an education as will make them independent and prevent them from becoming delinquent.

Raising the compulsory school age will not suffice. We already have a law which provides that every child must attend school until the age of sixteen unless the child is between the ages of 14 and 16 and is necessarily and lawfully employed during the hours when school is in session. Yet we were told at the State Teachers Association by Dr. Cooley that there are 23,000 boys in Chicago between the ages of 14 and 16 loafing on the streets.

The state provides for the education of deaf, dumb, blind, and delinquent children by enabling school directors and boards of education to provide special schools and classes for such children, and by the payment from the state treasury of the excess cost of such schools. The "Ounce of Prevention" is similar provision for vocational training. This would eliminate that ever-present, recurring objection, expense, and with the removal of that objection, all others would seem small indeed.

WHAT TEACHERS CAN DO TO AID INDUSTRIAL EDUCATION.

JOHN L. KETCHAM.

In the December ATLANTIC MONTHLY a British writer severely criticises our manufacturers of iron and steel. He says: "German exports, which were about 30 per cent. below those of the United States in 1900, are now something like 300 per cent. above them." This unfortunate state of affairs is attributed to high finance, with the accompanying increased cost of all material entering into the manufacture of iron and steel.

Last summer our leading iron men, seeking to cultivate cooperation with their competitors abroad, visited Brussels and made an appeal for a share of the world's export trade on the theory that the golden rule required a division of territory and of profits.

Doubtless the iron manufacturers of Germany were not suitably impressed with that appeal. Germans have for many years wisely invested in industrial education, while the manufacturers of the United States have paid more attention to bonds and stocks. The Germans have kept costs down by their wise methods. The Americans have made costs high by their unwise methods.

Ten years ago our captains of industry ought to have organized, for themselves, a class in industrial education, and to have selected as their teachers Messrs. Brandeis and Taylor, two experts in cost systems.

Money invested in industrial education our foreign competitors have found to be a wise investment. Germans have the reputation of managing all their affairs with the closest economy, but, in the matter of industrial education they have been liberal in the past generation and are now reaping the benefits of such generous contributions. The *State* expenditure for trade schools in Prussia in 1886 was \$142,500.00; in 1908, three million dollars! This sum provides for twenty-one hundred trade schools and three hundred and sixty thousand pupils therein. In Vienna last autumn a central building was opened for a continuation school, with something like sixty workshops, at a cost of \$1,600,000.

Cologne has, for centuries, been famous for its beautiful cathedral. Recently it has been more practical and has erected a building to educate machinists, at a cost of \$464,000. Munich had last year 9,500 boys in its continuation schools, at a total cost of \$300,000; 10,500 girls, at a cost of \$70,000.

Thus we see that Germany spends money freely for industrial education. No wonder its exports of iron and steel are 300 per cent. greater than those of the United States.

Ireland is poor, and yet the Emerald Isle spends a million dollars annually on industrial education.

BELFAST AND INDIANAPOLIS.

There is a striking contrast between the city of Belfast, Ireland, and the City of Indianapolis, Indiana. Both cities began the work of industrial education about the same year,—1901. Belfast has a population of 349,000; Indianapolis 233,000. Belfast calls her school the Municipal Technical Institute; the city and state support it; the buildings cost five hundred thousand dollars, and equipments two hundred thousand. Within a month after opening her school 2,000 students were enrolled; within a year five thousand. Boys are admitted at the age of twelve. The school has been a success from the start.

Indianapolis called her school the Winona Technical Institute, later the National Trades School. Now, what name shall we give it? Or, shall we wait and give it another name after years of litigation are ended? In the matter of trade schools the Irish are quick witted and the Hoosiers slow! The city of Indianapolis and the State of Indiana ought to get under the Winona Technical Institute and give it generous support. Much can be done by the teachers of Indiana. The property is now turned over to them; they should give it their best thought, their earnest support.

Indiana is slow to take up industrial education. Massachusetts, Connecticut, New York, New Jersey, and other states have forged ahead. The expenses of the Massachusetts Commission on Industrial Education for the year 1907 were approximately twenty-seven thousand dollars. Indiana is restricted to two thousand dollars.

The Assistant Commissioner of Education of the State of New Jersey, under date of July 28th last, wrote me: "The total amount expended by the state for industrial education for the year ending June 30th, 1910, was \$372,959.03."

The State of Indiana has been out of line in the matter of industrial education. Is it not high time to get in the procession? There are, in our state, 670 agricultural schools, and 178 manual training schools, but no trade schools. Vocational training is slowly creeping into some of our city schools. Take for example School 52, Indianapolis. The following is taken from a report of Principal R. W. Himelick:

WORK FOR THE BOYS.

1. About one-half of the time is spent in industrial work.
2. Lines of work;
 - a. Woodworking—this includes a knowledge of tools and their uses; making various articles for themselves; repair work in and about the school building; making articles of furniture for the school building.
 - b. Mechanical drawing: This involves a mastery of the mechanics of the subject. Drawings are made of the various articles that they are to make in the shop.
 - c. Design work: When a boy decides what he wishes to make he proceeds, under the direction of the art teacher, to make a sketch of the thing. The art side as well as the utility side is considered.
 - d. Forge and other machine work: The object is to give the boys an opportunity to do things as the world is doing them. The tools that we feel he needs most and the ones which we have installed are: forge, band-saw, lathe, planer, joiner and wood trimmer.
 - e. Printing: This work involves so many things that we find it very useful. The proofreading furnishes an application of the English work. The care necessary in this work is good for the boys.

WORK FOR THE GIRLS.

1. The same amount of time is spent in industrial work as is the case with the boys.
2. Lines of work.
 - a. Cooking: This includes a study of the whole subject of household economics. The girls are taught how to serve plain and elaborate dinners. Lunches are served to the teachers each day at a nominal cost. This gives a chance to dispose of what the girl cooks at a profit. Some time is spent on the proper food for infants and how to prepare it. Attention is also given to invalid cookery. Every effort is made to teach the girl how to economize in the buying and cooking of foods.
 - b. Sewing: The same idea is kept in mind here as in the cooking. The girls make many articles that are needed about the building, such as curtains, napkins, tablecloths, towels, etc. They also make their own clothes, both outer and under.
 - c. Design work: This work is along the same line as that given to the boys. This involves also the art needlework.

GENERAL FEATURES.

We have introduced a line of industrial reading that is proving very helpful. We feel that reading involves an interpretation of the printed page. This must mean in the life of the average individual many kinds of pages. It is our feeling that in school he should not be confined, as in the past, to the literary page, but to numerous forms of writing. The following are some of the things read thus far: "Pointed Sharpeners" (a discussion of the making of scissors); "Romance in Keys;" "Disston Handbook on Saws;" "Maydole Hammer Company;" "Book Reviews as found in Book Catalogs;" "Russell Jennings Bits;" etc.

The boys and girls are not neglecting the so-called "R's." They are getting more and getting it better because they have a chance for a constant application of the theory.

There is a spirit of work that permeates the entire school that is found in very few schools of the old type. The boys and girls are happy and feel that they are doing something worth while. They go at the work in a serious manner, as if it meant something to them.

SPECIAL FEATURES OF THE SEMI-INDUSTRIAL WORK AT SCHOOL NO. 52,
INDIANAPOLIS.

For thirty-one years I have been a manufacturer, with my office a distance of one block from School 52, heretofore described. I watched it grow from nothing to two large buildings with an attendance now of nearly one thousand pupils. The school is in a manufacturing district; few of its graduates go to the high school, none go to college; they have to go to work. Hence, the wisdom of the teachers in giving their scholars, boys and girls, a good start for their life's work. I often visit the school. I took with me on one occasion a very skilful carpenter who had a successful experience of thirty years in his calling. I showed him the work done by the boys,—boys twelve, thirteen, fourteen years old. One piece of work done by a boy of fourteen particularly interested him. He said he could not beat the workmanship of that boy of fourteen years. This is a typical case. The same skill prevails in all departments. On another occasion I gathered together ten heads of manufacturing industries in the neighborhood and took them to enjoy a lunch provided by the girls. The menu was as complete as any made by a French expert; the cooking and serving were equal to the best given by the hotels in our large cities; the souvenirs at each plate showed originality in artistic skill. I enlarge on School 52 because what is being done there can be done elsewhere.

In 1859 I attended the public schools of Stuttgart, Wurtemberg, Germany. The classics were taught; boys ten and twelve years old were

marvelously proficient in Latin prose composition. Digging around the dry roots of the dead languages developed Greek and Latin scholars in great abundance, but not bread winners. Emigration set in to such an extent, the statesmen were alarmed. Teachers turned their attention to vocational training. Soon Wurtemberg was dotted all over with trade schools. Classics gave way to practical work. Emigration stopped; homes were no longer deserted; prosperity and not poverty prevailed as the result of goods manufactured and exported, and money received in return.

Take this illustration as one of many: the single item of machinery and tools. Germany's sales to the United States have doubled in the five years from 1900 to 1905. Meanwhile American sales to Germany, in this line, are now about one-third of the totals of five years ago. (Teachers College Record, Vol. VIII No. 5, page 9).

COST OF INSTRUCTION NOT PROHIBITIVE.

An impression prevails that the cost of instruction, such as given in School 52, is too great to undertake work of that kind. On this point I quote from an address delivered by the director of the schools at Munich. He says (referring to industrial education): "to educate the rank and file of the people in this manner, is naturally very expensive; but the continuation schools are not so expensive as the primary schools."

If school boards will permit the product to be sold, the cost of running such schools will be greatly reduced.

The Manhattan Trade School for girls was established on a philanthropic foundation in 1902; was taken over Sept. 1, 1910, by the public school board of New York City. There are at work in that school 270 girls. What they made in one year sold for a profit of \$20,949.63. The total cost of the school was \$75,498.00; the net cost, \$54,448.37. The school is new. I venture the prediction that the product sold will increase from year to year and the net cost to the city will grow less.

When our Indiana Reformatory started its trade schools the cost to the state was quite an item. Today the state makes a profit from those same trade schools, as witness the last report of the superintendent in charge, Major David C. Peyton: Product sold \$133,028.33; cost, \$43,567.06; net profit to the state, \$89,461.27.

For several years I had charge of a small foundry run by boys at the Winona Technical Institute. With twenty boys at work the foundry would pay all expenses and pay the boys a wage of from four

to eight dollars a week, with thirty boys at work a profit over expenses and wages could be earned, which profit could be used in the enlargement and betterment of the school. No Indianapolis foundryman objected to the sale of the product of the foundry; on the contrary, manufacturers aided the school, helped dispose of its product, and complimented in writing the excellent work of the boys.

Teachers! When you take up this work you will find manufacturers anxious to help you. The principal and the teachers of School 52 have been timid about sounding the praises of their work. All teachers are entirely too modest. Indiana has seventeen thousand teachers. What a power for good in such a formidable body! If you really want industrial education—"Ask and it shall be given you; seek, and ye shall find; knock and it shall be opened unto you."

Ohio has a brief, comprehensive law, as given on page 510, 25th annual Report Commissioner of Labor:

Section 7722. Any Board of Education may establish and maintain manual training, domestic science, and commercial departments, agricultural, industrial, vocational, and trades schools; also kindergartens in connection with the public school systems; and pay the expenses of establishing and maintaining such schools from the public school funds, as other school expenses are paid.

This puts the entire educational work, cultural, industrial, agricultural, domestic science, commercial, where it belongs, namely; in the control of school superintendents, state and county; in the control of school boards and,—more important than all—in the control of the teachers.

To teach a farmer's boy the science of agriculture; to give a boy, whose life is to be spent in a factory, extra skill for his calling; to impart to a girl such interest in domestic science that her home is cleaner, brighter, happier, what higher ambition than that can come to any teacher?

It is claimed that some foreign countries get from an acre of ground two bushels of wheat where we get one, and this because of the careful selection of seed. You can get twice as much out of a boy if you will help him carefully to select the seeds of talent or of taste or of ambition that lie at the roots of his nature. You can make a girl thrice happy if love for her work and what she loves in her work is skilfully directed on your part by a considerate and painstaking analysis of her mental bias.

Too much praise has been given to victories in war. It is time for poets to sing the praises of work; the dignity of work; the joy of work. In war it is death and sorrow and anguish, and yet, the poet sings of war:

And *Glory* guards in solemn round the bivouac of the dead, with emphasis on the *Glory*. Hasten the day when glory will apply also to the teacher who develops into the beauty of usefulness the characters of our boys and girls!

THE MORE A WOMAN SHALL HAVE LEARNED TO LIVE BY HERSELF THE BETTER SHE WILL OCCUPY HER POSITION IN WEDDED LIFE SHOULD SHE MARRY. TRAINED TO DIRECT HERSELF, TO EARN HER OWN LIVING, CAPABLE OF ENERGY AND DECISION, A WOMAN, IF SHE MARRIES, BRINGS A PRECIOUS CO-OPERATION TO HER HUSBAND. IF SHE NEVER MARRIES SHE WILL KNOW HOW TO BE ALL SUFFICIENT TO HERSELF. SHE WILL NOT BELIEVE HER LIFE LOST, NOR MAKE OF IT A MORBID MATTER.—Charles Wagner.

PUBLIC SCHOOLS AND COMMUNITY LIFE.

EDWIN L. HOLTON.

One of the vital problems of our American democracy is the ever increasing trend of rural population toward the great centers of population. Growing out of this are two other vital problems, viz., (1) the ever increasing percentage of tenant farmers, and (2) the ever widening gap between the increase of consumption over the increase of production of agricultural products of our country. What is the cause of this trend of rural population? Where lies the dominant weakness in our social institutions, which pulls the red-blooded young men and women from the open country to the larger cities? There are many forces at work which tend to bring about this result, but I have a firm conviction that the kind of training given in our public schools is a large factor in unfitting our boys and girls for the work of their home communities, and lures them on to the city. I know that every individual has a "pull" upon his soul that tends to draw him towards the gang. And I am aware that this incessant tug is an elemental part of the individual given him when civilization was in the making. But when the public schools become what they should be—centers for community building—this gang life or social instinct will find the attracting power in the neighborhood social life.

The courses of study in our public schools are based upon the psychological fallacy of formal discipline or mind training, instead of the vital instincts of the child and the dominant needs of the community.

I recently heard a college president tell a group of young women who were planning to direct the affairs of their own homes, that a course in Latin would be of "untold value in making definite decisions on the difficult problems of child training." This is a rank fallacy. One year of Latin will prepare for the next year of Latin, but it does not develop stronger mental power. The same is true for other subjects.

The schools have been used in a factory-like method of training the boys and girls to pass from one grade to the next higher, from the grammar grades into the high school, from the high school into the college, and from the college to the larger cities. The colleges are largely to blame for this condition of affairs. They have handed

down ready-made the courses of study for high schools; the high schools have had a decided influence on the lock-step work of the grades.

The remedy is to redirect our schools toward the home, the farm, the shop, and higher levels of community life. Not theoretically, but practically. Not by the use of text-books alone but by giving the child first hand experience in making things and in growing things, by making the school the social and educational center for neighborhood life. Not six hours a day for five days a week, from six to nine months a year, but twelve hours a day for seven days in the week and 365 days in the year. Not for boys and girls only, but for every member of the neighborhood in which the school is located.

Kansas is leading all other states in redirecting her schools toward the vital problems of neighborhood life. Neighborhood Improvement Clubs have been formed in several hundred rural neighborhoods. These clubs meet in the school building and discuss such questions as the recall, the initiative, the referendum, the direct primary, pure bred dairy cows, conservation of moisture in the soil, consolidation of rural schools, modern conveniences for the home, how to revitalize the rural church, etc. The program often consists of an old fashioned "literary," spelling matches, and neighborhood entertainments. Superintendent Houston of Wabaunsee County, has started a movement which is destined to do some valuable work for that county. He has planned a series of joint meetings for two or more of the rural schools. The programs are given by the pupils of the schools. The parents take part in the discussions. The following program will indicate the nature of the problems discussed in these meetings:

RURAL SCHOOL IMPROVEMENT MEETING.

Hinerville School House, Jan. 19, 1912.

The Pavilion School, District 22, will meet with the Hinerville School on the above date and render the following program:

PROGRAM.

1 o'clock P. M.

- | | |
|--|--------------------------------|
| 1. Song | America |
| 2. Corn—Selection and Care of Seed..... | Harry Forinash |
| 3. Corn—Planting and Cultivation..... | { Wm. Linscott
Jennie Hiner |
| 4. Corn Judging..... | John Drury |
| 5. General Discussion by parents and pupils. | |

6. Song.....Hinerville School
7. The Jersey Cow.....Grace Lowe
8. Care and Feed of the Dairy Cow.....Dorothy Mosely
9. Milk Testing and Demonstration
General discussion by parents and pupils.
10. Address, "Schools for Neighborhood Life"
Professor E. L. Holton, Kansas State Agricultural College
11. Address.....Professor E. B. Gift, Alma
12. Song.....Pavilion School

The patrons and residents of these two districts are very cordially invited to attend and take part in the "General Discussions." Come prepared to ask questions and offer criticisms on our schools. The schools are yours and should be conducted to produce the best results for you, your children, and the State.

MATTIE MCCOMB,

GRACE BOLTON,

Teachers.

This program was sent out to every patron in the two districts. These meetings are doing much toward making the school the center for neighborhood life.

Agriculture is taught in more than 7,000 rural schools, and about 450 city and village schools; domestic science or domestic art or both are taught in about 700 rural schools and 200 village and city schools. In some cases this work is poorly done, but on the whole the vocational work is as well taught as any other subject in the course.

During the present year there have been a large number of one-day agricultural fairs held in rural and village schools. Several county high schools and one or two city schools are offering short winter courses for farmers and farmers' wives. Some of these schools do extension work—carry the school to the people.

The urgent need in Kansas today is for every high school to maintain a two-year course in agriculture and home economics. The work of this course should begin the first of October and close the last of March. The following course is one that is offered in a county high school in Wisconsin:

HIGH SCHOOL COURSE OF STUDY.

BOYS

First Year

Mechanical Drawing
Study of Farm Animals
Physics
Arithmetic
Testing of Cattle for Tuberculosis

Second Year

Animal Breeding
Botany
Insects and other Farm Pests
Feeding Farm Animals
Horticulture
Concrete Construction

Civics
Dairying
Forgework
English
Shopwork
Physical Training
English
Farm Botany

Drainage and Road Construction
Farm Machinery, including Steam and
Gasoline Engineering
Soil Physics
Chemistry
Farm Management
Practicums
Field Crops

GIRLS

First Year

Cooking
Chemistry
Food Study
Physical Culture
Garment Making and Textiles
Cooking
Laundrying
Sewing and Textiles
English
Arithmetic
Physiology and Hygiene
Civics
Vegetable Gardening

Second Year

Woodwork
Cooking
Dressmaking
Household Bacteriology
Cooking and Serving
Dietetics
Art Needlework
Botany
Millinery
Household Management
English
Physical Culture
Household Art
Home Nursing
Household Chemistry
Invalid Cooking

In addition to this two-year course there should be a short winter course running from four to six weeks. This course should be pointed toward the dominant farm problems of the county. The two-year course and the short course must be adapted to local conditions.

The old-line type of high schools and colleges have overcrowded the professional vocations. According to a recent report, out of the 100,000 practicing lawyers in the United States 80,000 have an annual income of \$1,000 or less, and a large per cent. of the remaining 20,000 are receiving returns for unproductive service to the state.

The problem in public education today is to furnish vocational guidance for all and vocational training for the producer—the one who feeds, clothes and shelters society. Kansas will not Wisconsinize nor Germanize her public schools, but she will take the best from her sister states and foreign nations and add to that her own larger contribution, thus developing a Kansas plan that will not do less for the six per cent. who are preparing to go to college, but vastly more for the ninety-four per cent. who are preparing for productive citizenship.

VOCATIONAL TRAINING OF WOMEN.

WOMEN are going to work. This is not saying that they have never worked but rather that they are making conscious effort to find for themselves a place among the world's workers. Women formerly worked and worked hard, and men might well blush with shame at the nature of this work. Woman was a chattel with a ball and chain around her ankle. She had no rights—political or social. But she did the larger share of the work of the world.

Later the chain was made of finer links and the ball was flattened to a locket—both being of a better grade of metal. Now she became the plaything of man. He dressed her in fine clothes, gave her social position and condescended to give her some property rights. To those that he did not dress and make his playmates was given the questionable privilege of working at low wages in textile mills and sweat shops. A few committed grand larceny by breaking into institutions of higher learning and the professions.

Her Present Activities

Within a month we have heard of women in the questionable employment of throwing bricks at the windows of London shops. Surely this is a new role. She stands on the soap box at the street corner addressing suffrage arguments to curious on-lookers. She invades the halls of legislation. She argues for a pay envelope with the stamp of figures equal to that paid men. She pleads for shorter hours for those of her sex who are working in the trades. She organizes her sex into unions and leagues. In short, there is something in the air with relation to woman's work and woman's economic, political, and social status. We had better take notice.

It is no sudden development. Woman is neither a slave nor a doll. No longer is she the "woman who spends" but rather the woman who produces. Stand any day before the gates of a Lowell textile mill or the shoe factories in Brockton or the electrical shops of Schenectady and you see the force of the statement. She has entered nearly every vocation and her numbers are increasing.

The breaking of windows calls for big headlines in the newspapers. But the breaking into our great productive industries, organizing into trade union leagues, and the demanding of equal pay receives less attention. But here is a deeper significance. It is bound to affect the entire question of woman's place in the work-a-day world. Some people would restrain woman. They would put her back into the home. They would confine her to "woman's work." They would teach her how to spend rather than how to earn.

Where is Woman's Place Let us see where she belongs. We will assign her to the home. Whose home? She no longer steps from the red school house into her parlor, there to twirl her thumbs until *the man* appears on the scene. Few girls are now married at sixteen. It would be called scandalous. Thumb exercises for five or eight years are tiresome. She seeks employment, and it is right from every stand-point that she should. Just think this over. Well! then we must assign her to "woman's work." What work is it to be? According to custom, a textile mill seems to be a legitimate field and working in an electrical shop a wrong one. A famous typewriter company employs many women on its multiple drills, on its stamping devices, and in its assembling room. A large electrical concern employs women to wind armatures and assemble parts. "Shocking!" you say. But these factories are new, they have excellent light and improved ventilation. They are clean and sanitary, while many of the textile mills referred to are old in construction, filled with fine dust, and unsanitary. The work is hard, the noise is deafening, the hours are long, and the pay is small. Which of the two lines suggested is "woman's work?" Look at this from all sides. Again, some would have her "spend." Spend what? Surely not to spend money which she does not possess, to live a life of ease when there is no provider, to stand idly, as the spider in the web, watching the passing throng and take the first offer of marriage. We must remember that she wears no chains either of slavery or ornament. She demands and expects the right to live on a plane of equality with man.

Preparation For Her Work Assuming that she has settled upon her "rights," as she terms them, and that she is prepared in her mind to enter the field of the world's work, it is necessary to think of her preparation for this work. The solution of the educational

problem is not easy. It will not be solved by men alone. The same human forces which are asserting her rights to vote, to work, to hold property, to have equal pay must attack the problem of woman's education. If she is to work in the foundry, the machine-shop, the electrical department, the textile mill, the printing office, the field, the office, and the store, then she must be prepared for the work just as man is to be prepared for it. If human society can come to the conclusion that the foundry shop, the sweat shop, the file-cutting shop and the grinding shops are not suitable places for women, then human society must pass laws forbidding women to do such work or else human society must so improve the industrial and economic conditions of such work that woman can work in it. We are shocked by reading about women tending the switches of the traction lines in Munich but never a chill goes thru us when we see the dust laden atmosphere of a mill in which women are employed. We smile at the girl who goes to the State University to be a farmer and forget the \$4.00 a week cash girl who stands behind the counter.

**One Field
Which is
Distinctly
Hers**

Whatever we may think or say, woman has one distinct field. It is the bringing into the world of the child.

Every girl is a potential mother. Every woman is a possible homemaker. In fact so is every man for it takes two to make a home. Every girl should have the best of health, some knowledge of her peculiar sex functions, some preparation for playing her part in the possible home. Human society must recognize that no woman's work is to injure the best possibilities of the next generation. Cheap underwear for bargain counters can never be a recompense for dull-eyed, anemic children. Let us at least be as sensible with reference to the health of the woman who bears the child as we are when it comes to breeding live stock. Furthermore, let us prepare her to take her distinctive place in the home as the helpmate of the man.

**Preparation
For the
Right Thing**

Beyond this we must definitely fit her for the work which she has chosen in the productive and distributive fields of labor. Work here she will, and all the brooms of good people will not sweep back the tide. The only way to prevent her doing the wrong thing is to prepare her to do the better thing. If we ignore the fact that she is to work and fail to fit her for work it is but natural that she fall into the thing that is at hand. If woman can set

type and wants to set type then it is obvious that she should be trained to set type. The girl who leaves the sixth grade in Fall River unprepared for any vocation and enters the cotton mill because there is nothing else to do, needs consideration just as much as the delivery wagon boy of whom we hear so much. Because of marriage later the blind alley for such a girl is not so long but it is just as dark. A little cooking and sewing will not solve the problem. These things will be most useful when she comes out into the light. But the blind alley needs the light of vocational preparation.

Much has been said here about the mill type of girl. The high school and college girl requires special preparation for the years intervening between the school and the new home. The time is rapidly disappearing when girls will go on to higher schools to be "finished." They will demand that they be finished for something. The field of possible activities for college women is broadening. There are opportunities as newspaper reporters, in secretarial work, as investigators, social service workers, factory inspectors, designers, and so on. The high school graduate must find an outlet in other fields than stenography, clerkship, and salesmanship. Even other trades than dressmaking and millinery are, or will soon be open to her.

We are only at the beginning of a new conception of woman and her work. She will be educated only as she is master of herself and master of her job—master of herself in the sense that she must know of her possibilities as a woman of splendid health, of personal power and of genuine poise—master of her job only as she is fitted for a God-given motherhood and a community-given vocation.

—ARTHUR D. DEAN.

**Unmet
School
Needs**

As another long vacation season approaches there comes with it the recurring opportunity to study what many believe to be one of the most pressing problems before us—the effect upon our boys and girls of this periodical interruption of school work. At the Saint Louis meeting of the Department of Superintendence, considerable time was given to a discussion of the responsibility of the community in connection with its "unmet school needs." It was very instructive to note the emphasis on two fundamental principles: First, that the community ought to discover, and become aware of, its unmet educational needs; and, second, that the remedies to be applied must be justified by their adaptability to these

recognized needs rather than by their efficacy in meeting a situation in some other community.

Vacation Activities of Boys and Girls A careful study of the vacation activities, or inactivities, of the boys and girls would almost certainly throw light upon the educational problems of any community and bring to the surface some of the unmet needs. Now is the time to plan a systematic effort to get at the facts and to provide the conditions which one speaker proposed as essential to a satisfactory study of the problems: (1) Careful investigations of the children, the environment, and the vocations; (2) A central office with investigators trained in child study and educational methods, and armed with the confidence of the public; (3) Intelligently planned questionnaires and investigations; (4) Careful examination and appraisal of existing contributions toward the solution of the problems. In a good many cases the second condition mentioned may not be attainable, but even without that a beginning may be made.

Elaborate Inquisitions Not essential Too often nothing whatever is attempted because of a mistaken notion that it is not worth while to do anything except on a large scale involving extensive machinery and facilities. Such a position is indefensible and should not be permitted to block the way to modest beginnings. Consider the possibilities of two comparatively simple investigations: (1) A census of all boys and girls, of ages from 12 to 18 or 20 years, classified according to school enrolment, or occupation, or neither: *a.* Grammar school, by grades; *b.* High school by years; *c.* Engaged in gainful pursuits, by occupations (with record of amount of schooling for each individual); *d.* Not attending school and not engaged in gainful occupations, with record of amount of schooling for each individual. (2) A census of the boys and girls included in the foregoing, showing the uses made of the summer vacation; for example, amount of time spent: *a.* In trips away from home, more or less definitely recreational in character; *b.* In gainful employment; *c.* In study, at school or under private instruction; *d.* At home, with no definitely planned duties or activities. The expense involved in the printing of the necessary forms and in arranging for a canvass would not prove embarrassing to any community, and the gathering of such data would not only help to answer definitely the

question as to the need for vacation schools, and perhaps other questions as well, but would also serve to point the way to the next step to be taken.

—WILLIAM T. BAWDEN.

Who shall Provide Vocational Education? Perhaps nothing marks the progress of the movement for vocational education more clearly than the change which is to be observed in the topics presented for discussion at educational conferences and conventions where this type of education is under consideration. Two or three years ago the questions discussed were whether it was possible to give a vocational education in schools, whether it was a legitimate function of the public school to furnish education with a utilitarian content, and whether it should be provided in connection with elementary, secondary, or higher education. Today the three questions most commonly discussed are: "What kind of vocational education shall be provided?" "By what methods, and in what combination with academic subjects shall it be administered?" and "By whom shall it be given?"

It is becoming evident that there is no specific answer to the first two of these questions, that the nature of the training to be afforded, and the particular method of providing it, are matters which must be governed wholly by local conditions since this type of education must be absolutely appropriate to the individual receiving it. Therefore we have as the most immediate and important question today, "By what authority and under what management shall public vocational education be provided?"

To this question two different answers are heard. One is that the present school system should be so revised and amplified that it would be capable of serving all the educational needs of the community. The other is that a separate system of vocational education is preferable because the present schools exist for a specific purpose which they are fulfilling exceptionally well and that it is, therefore, unnecessary and unwise to force upon them a new duty which they are in no way prepared to meet and with which they are traditionally and temperamentally out of sympathy. While we do not deny that the question is debatable and while it is possible that the initial steps must be taken with due reference to both view points, we are strongly influenced in our opinions by two major considerations: First, that the broader, the more democratic solution, for a democracy like ours, is the one infinitely more to be desired; and second, that, if modern industrial evolution

has taught us anything, it is the economy and efficiency of united rather than divided management and responsibility. If our school committees or our school superintendents are not sufficiently sensitive to the educational needs of the whole public there is nothing to prevent the public from selecting their successors or at least from injecting into the general situation a sufficiently strong representation of the more recently developed needs to insure their proper considerations.

An Important Conference in Illinois. What will undoubtedly prove to be an important conference was recently held at Champaign, Illinois, where this question received prolonged and careful consideration.

The conference was called by B. F. Harris, president of the Illinois Bankers Association, and chairman of the Committee on Agricultural and Vocational Education of that Association. To this meeting were invited in addition to the members of the committee, seven men representing various educational interests in the State of Illinois, and Theodore Sexaur from Albert Lea, Minn.

The interest which the bankers of Illinois may have in agricultural education is too obvious to need comment. It is perfectly conceivable that members of the bankers' committee might desire to advance the interests of agricultural education for the purpose of improving land values in the state without having at heart any of the larger social interests which are coming to be associated with the movement for vocational education, and that the meeting might have been called by the committee primarily to determine what form of legislation would most effectively promote the interests which they had at heart.

With the above considerations clearly in mind it is a most significant fact and one which augurs well for the future of education in Illinois, that the conference came unanimously to support the three following propositions:

First, that state aid is an absolutely essential feature in promoting such education; second, that any legislation should provide equally for agricultural education, manual training, and domestic science; and third, that this aid should be afforded to any public school, whether within the present system or in a measure outside of it, if such school will successfully conduct real vocational courses, but that the control of all such schools should be uniformly in the hands of the present educational authorities of the state and of the local communities.

Considerable discussion was had regarding the possibility of giving satisfactory agricultural education in the rural schools and high schools, and Mr. Sexaur fully described Minnesota's excellent and comprehensive system and the legislation under which it is promoted. This plan affects, or may affect township high schools, consolidated schools, and so-called associated rural schools. Mr. Sexaur stated that the plan originated with two city school superintendents. This fact is worthy of mention when we recall how frequently educational advances of this sort are brought about by pressure from the outside rather than by growth from within the existing schools.

The meeting was for conference rather than for action and no definite measures were approved. There was appointed, however, a committee consisting of three bankers and three educators to draw up a bill which would carry into effect the several ideas tentatively agreed upon by the conference. The members of this committee are, in addition to B. F. Harris of Champaign, W. G. Edens, Chicago, Irving Shuman, Sullivan, F. G. Blair, Springfield, R. E. Hieronymous, Eureka, and David Felmley, Normal.

A remark made by Dean Davenport during the discussion is one which should be taken to heart by every educator in the state. He pointed out that just at the present time all the conditions are extremely favorable for securing both legislation and the personal support of the community, so much needed wherever any educational innovation is to be put into operation. He reminded us all of the fact that, while these conditions are today more favorable than at any previous time in the history of the United States, there is no reason for believing that they will necessarily remain so indefinitely. His presentation of the matter brought conviction to the minds of all, that efforts of educators should be bent at once to the furthering of this important movement for popular education.

—FRANK M. LEAVITT.

A COMMUNICATION.

We are glad to print the following letter from the president of the Wisconsin State Board of Industrial Education, and chairman of the industrial education committee of the National Association of Manufacturers:

My dear Mr. Editor:

You printed in your January issue a statement concerning the new law in Wisconsin for Industrial Education. Thru some error, not yours, the statement

was erroneous. It was to the effect that Wisconsin has compulsory education up to fourteen years of age. The truth is Wisconsin requires every child to go to school from the 7th to the 14th year, or until it has finished the eight-years' elementary course. If the child has not finished the elementary course, it must continue to go to the public school until it does finish this course, or until its sixteenth birthday, provided, however, that after the fourteenth birthday it may enter upon a useful employment, first obtaining a formal permit from the commissioner of labor, a state factory inspector, or from the judge of a county, municipal, or juvenile court. If it does enter upon such permitted occupation, it must continue faithfully in that occupation. If the child leaves the occupation, it must return to the public school, and the employer must return the permit for cancellation. The child who thus goes to work must up to his sixteenth birthday attend an industrial school not less than five hours per week, the total hours of employment must not exceed forty-eight hours per week, including the five to be spent in school, and the wages must include the hours spent in school.

In this sense Wisconsin has compulsory education up to the sixteenth year—in the common school until fourteen, and either in the common school, or this industrial or continuation school from fourteen to sixteen years; those children are excepted, as stated, who have finished the elementary course, also the children upon the farms, supposedly upon the theory that the farm is itself an education.

Wisconsin has also distinguished herself by a new Apprenticeship Law. Dr. Edwin G. Cooley, who has just studied the apprenticeship laws of the various states, says they evidently were written with the thought of taking care of imbeciles and helpless children, of orphans, etc., and contemplate a sort of alternative from life in public institutions.

The new Wisconsin law provides that the whole trade shall be taught, and that the apprentice shall be given at least five hours a week in the industrial or continuation school with wages continuing thru the school hours; the total hours of employment to be not over fifty-five per week, including the five hours in school.

The employers of apprentices in and about Milwaukee are in hearty accord with the new law, and are just bringing their apprentices under it in a contract recently agreed upon with the Wisconsin Industrial Commission.

By many of us it is greatly hoped that a new apprenticeship system may quickly be developed thruout the country somewhat after the German fashion, and of great value to both employer and employee.

Yours very truly,

H. E. MILES.

**Milton P.
Higgins.**

A few days ago we learned of the death of one of the members of our Advisory Board, Milton P. Higgins of Worcester, Mass. His death removes one of the most devoted workers in the cause of industrial education that this country has ever seen. Probably no other man in America has labored so consis-

tently through so many years for a type of industrial school that is now for the first time gaining recognition. It was forty-four years ago that Icabod Washburn placed upon Mr. Higgins the responsibility of developing the shops of the Worcester County Free Institute of Industrial Science, now the Worcester Polytechnic Institute, as a trade school. Owing to the form of development taken on by the school, the carrying out of Mr. Washburn's desire became impossible, and it was not until the establishment of the two Independent Trade Schools in Worcester, under the recent state law, that the ideal of Mr. Higgins was fulfilled. It is most fitting, therefore, that he be called the founder of these schools.

Mr. Higgins was born in Standish, Me. in 1842. In his father's blacksmith and repair shop he developed a taste for mechanical work that lasted thru life. At the age of seventeen he became an apprentice in the shops of the Amoskeag Manufacturing Co., Manchester, N. H. Here he learned something of the advantages of an education, and began to study. He worked his way thru Dartmouth College, and received the degree of Bachelor of Science in 1868. His practical experience, combined with college training and fine personal qualities caused him to be selected to take charge of the new Washburn shops just opening that year in Worcester. During the twenty-seven years under his management these shops developed many machines showing an advance in design and construction over machines formerly in use, among which was the hydraulic elevator. While the shops were run primarily for educational purposes they succeeded also as a commercial enterprise, and the financial statements by Mr. Higgins were most remarkable, for he made these school shops more than self-supporting.

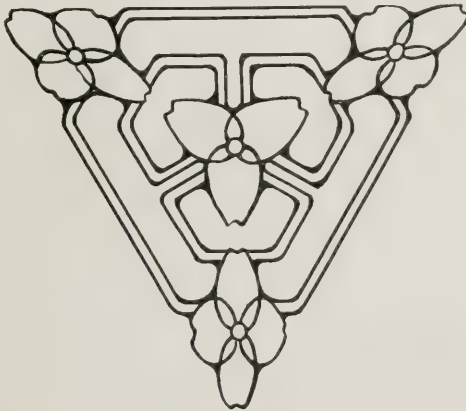
Mr. Higgins' rare business capacity was further illustrated when he purchased the chief interest in a small struggling business that has since become the Norton Company, now the largest manufacturers of grinding wheels and abrasives in the world, having two plants in the United States, one in Canada and one in Germany. In a similar way he acquired and developed the Worcester Pressed Steel Company.

But Mr. Higgins' chief ambition was not money-making, tho in that he was successful. It was, rather, the carrying out of his original ideas concerning industrial education. In 1899 he read a paper on this subject before the American Society of Mechanical Engineers, in which he advocated a half-time school, the shops to be owned by a school corporation, and the classroom work to be done in the public schools.

This aroused much discussion and brought him into demand as a lecturer and writer of articles on industrial education. In 1905 Governor Douglas appointed him on the commission that made the now famous Massachusetts report on industrial and technical education. At the beginning of the National Society for the Promotion of Industrial Education in 1906, Mr. Higgins was the chairman of the organization committee. At the time of his death, besides holding many important business positions, he was president of the board of trustees of the Worcester Independent Trade Schools, and a member of the board of trustees of the Worcester Polytechnic Institute.

But all these statements seem totally inadequate in making an estimate of Mr. Higgins; they do not reveal the real man. It was only as one came under the influence of his inspiring personality, felt the uplift of his personal interest, caught from him the spirit of open-minded searching for the truth, or knew him in his home, that the best in his life was discovered.

—CHAS. A. BENNETT.



OF CURRENT INTEREST

VOCATIONAL TRAINING* FOR GIRLS AND WOMEN.

The problem of trade instruction for young women is a new one and a complicated one. Woman's invasion of the industrial world is, in itself, a new thing. There are very few trades which are recognized as distinctly women's trades. Some of the old-time women's trades are being invaded by men. In fact the possibilities and desirability of trade instruction for girls depends almost entirely on the community and its industrial demands. The situation is further complicated by the fact that no matter what work a girl undertakes there is always the possibility that she may become a homemaker, and therefore she must at some time and in some way be prepared for that contingency.

Up to the present time, trade schools for girls have given instruction principally in well established women's trades—sewing, dressmaking, and millinery. In the larger cities power sewing machine operating is recognized as being largely women's work and is added to the trade school course of study.

The attempts made in various cities to meet the demand for vocational training for girls have resulted in four main types of schools; the elementary short-time school, the advanced short-time school, the day courses in public high schools, and evening schools. There seems to be no set rule in these various types of schools in regard to academic instruction, altho a number of the elementary type do include such instruction. There is no question, however, that all of these types make provision for such training, in addition to strictly trade instruction, as will make the girls better women physically, and will, as far as possible in the limited time, develop sound morals, both social and business, and a degree of industrial intelligence which will help the girls to rise, to progress, and to help themselves.

TRADE SCHOOL NORMAL CLASS IN BOSTON.

With the spread of industrial education has come the demand for teachers to take charge of the work opening up in different localities.

The Women's Educational and Industrial Union, for thirty-two years a pioneer in pointing the way to solve such problems, has offered its three trade school shops as practical laboratories where normal training in trade subjects can be obtained.

These shops were originally intended as a second year training for graduates of trade schools and so are well adapted not only to train teachers to trade ideas and methods but to give an opportunity to study girls who have passed through trade schools.

This work began in September, 1911, when a class limited to six registered for the course. Four days a week from 8:30 to 5:30 in the trade school shops, working at millinery, dressmaking, or children's clothing, were varied by one and one-half days of observation in the school of salesmanship and conferences with trade school leaders and the director. Lessons in textiles were given, also preparatory lectures on economics.

This practical work was supplemented by a group of lectures given for six weeks at Simmons College, during January and February, as follows:

Industrial Economics: "Discussion, lectures, and field work. A study of economic laws in their application to industry. In order to meet the requirements of trade-school teachers, this course presents a general survey of modern industrial organization. Special attention is given to the industries in which women are employed, and for which girls are being prepared in the trade schools."

Industrial Education: "Lectures and discussions. Among the topics considered are the following: The changes which have made industrial education essential; the types of schools already organized; the details of an ideal school flexible enough to meet local conditions; equipment, methods, course of study, teachers, organization."

Business Accounting: "The purpose of this course is to teach the fundamental principles of double entry bookkeeping in their application to retail business; to familiarize students with the forms and uses of business papers pertaining to the accounting department of a retail organization; and to develop an understanding of the workings of the accounting department, particularly in its relations with the selling department."

Practical Design: "This course is intended to give the student a practical knowledge of the elementary principles of design and color. Composition, proportion, and harmony are taught through practice in simple designing and color arrangements."

These four courses were designed to give the breadth of view needed to make a teacher realize that industrial education is only part of an economic development which must be met in a way so business-like that it will meet with the approval of the trade, the final judge of the success of this new type of education.

The spring term will be devoted to further work in the trade school shops during their rush season, visits and work in outside shops, to understand the demands of larger business organizations, visits and practice teaching in trade schools, and special preparation for the particular position which is opening to each student.

The requirements this year for the course were two years education beyond the high school, either college, technical or normal school or its equivalent; some experience in teaching or executive work was desired. The tuition was \$100 for the year.

A similar course will be given next year, with some additions to meet the case of the trade teacher who needs more of the pedagogical side than practice in trade processes. Several requests have come from trade teachers already employed in trade schools, for training in a summer course, along the line of method and practice in class management. Plans are maturing to meet this demand.

Thus an interesting future opens to this initial normal class in trade training. As it is still in a plastic condition, it is hoped it may develop along the lines best adapted to the ever advancing needs of industrial education.

—HELEN R. HILDRETH.

CONTINUATION SCHOOLS OF HOMEMAKING.

Those who believe homemaking to be woman's true vocation will be interested in the new kind of continuation school which is proposed by the American Association for the Study and Prevention of Infant Mortality. Statistics have been compiled by this association which show that over two million young women between sixteen and twenty-four years of age are described in the census as breadwinners. In many places where industrial education is provided for these young women, the demand has been greater for instruction in household arts than in any other subject—trade or academic. In addition to these wage earners, there are five million young women who are of the same ages and who are neither in industry or in educational institutions. These also would profit by instruction in homemaking. It is proposed to provide courses of instruction in household arts, in homemaking, and in the care of children for these girls who are of a marriageable age and who on this account would get immediate benefit from the teaching. Girls under this age are cared for in the homemaking departments of the public and private schools. The continuation schools would aim to serve not only the wage earners but the young women of well-to-do families.

Training in the methods and principles of caring for children, especially infants, would be made a strong point in these schools of homemaking. Instruction would be given in evening classes, and in day classes, where part-time cooperative arrangements could be effected.

As means toward the end, in view, the Association at the last meeting passed resolutions as follows:

"Inasmuch as our infant mortality rate is unnecessarily high (estimated by one Federal authority as 22d, by another as 18th in the list of 31 civilized countries, altho in national wealth we easily lead all), and

"Inasmuch as this is largely due to lack of education of young men and women for parenthood, homemaking, and care of children, and

"Inasmuch as the very great majority of pupils leave school before the age when this instruction can be effectively completed, and rarely have a later opportunity of receiving it, being deprived of proper education in parental homes by occupations, environment, or social conditions, therefore, be it

"Resolved, that the American Association for the Study and Prevention of Infant Mortality petition each State Board of Education to appoint a Commission on Continuation Schools of Homemaking, to consist of men and women technically qualified in home economics, sociology, school administration, and medicine, to study conditions and needs in the state, and to report efficient plans for meeting them thru such continuation schools or classes.

"Resolved, that such schools should be conducted wherever possible in model houses or flats, in addition to classroom work; that care of infants, children, and the sick be practiced in connection with homes, day nurseries, asylums, hospitals, kindergartens, visiting nurses, children's summer outings, or in other practical ways.

"Resolved, that special effort be made to create day continuation schools, as well as, or in preference to, evening schools, and also to secure cooperation of employers in arrangements for part-time schools."

The curriculum for continuation schools of homemaking will be discussed at the 1912 meeting of the Association in Cleveland.

The State of Massachusetts has already legislated on the subject of schools of homemaking for working women. John Jacob Rogers of Lowell, introduced into the legislature the following bill which became a law February 16th:

"Any city or town may, thru its school committee, or other board of trustees for vocational education, establish and maintain, in connection with the existing vocational schools organized under the provisions of chapter 471 of the Acts of 1911 with subsequent amendments, separate evening classes in household and other practical arts. Such classes shall be known as practical art classes and shall be open to all females over seventeen years of age who are employed in any capacity during the day.

Such classes may be established and maintained as approved state-aided practical art classes under the provisions of and subject to all the conditions, not inconsistent with this act, of chapter 471 of the Acts of 1911 with subsequent amendments."

A household arts continuation school has recently been inaugurated in Boston. The school presents an opportunity for girls working in factories to acquire facility in household work and to gain ideals of homemaking which will be of help to them in case they marry. The girls come to the school from various chocolate factories, located in Boston.

A NEW CHICAGO SCHOOL FOR GIRLS.

The Lucy L. Flower Technical High School, the first school of its kind to be opened by the Board of Education in Chicago, is nearing the end of its first year of existence. The school is for girls only and aims first of all to give a fine technical knowledge and a scientific understanding of the arts which pertain to establishing and maintaining a well ordered home.

In plan and purpose the Flower School ranks with the technical high schools already established in Chicago for boys, though some of the subjects studied are different from those pursued in the boys' schools.

Two courses of study are offered, one extending over four years, which will meet the entrance requirements of the Chicago Teachers' College and fit for entrance to the scientific courses of colleges and advanced technical schools; the other covering two years and designed to give such preparation as is possible in that length of time to girls who must become self-supporting at an early age. In both of these courses students are required to study cooking, sewing, and laundry work as fundamental necessities in the making of a well-ordered home. The more advanced and specialized work in the departments of Household Art and Household Science will give training in millinery and dressmaking and will also give instruction in the feeding and care of infants, in cooking for the sick, and in managing institutional kitchens and lunch rooms.

For those whose tastes do not lie in the field of household activities, the school authorities intend to supply training in other occupations, so that girls who need or desire to become wage-earners outside the home may have a

marketable skill in some healthful employment suitable for women. At the present time, photography, typesetting, bookbinding and other crafts which require both artistic skill and manual dexterity are under consideration for this end.

English, mathematics, the sciences, drawing, vocal music and physical education are required studies. French and German are offered.

It is the intention of the school management to extend the course of study to two years of graduate work which shall be of college rank and quality.

At present the school contains a limited number of girls who have been admitted by examination from the 5th, 6th, and 7th grades of the public elementary schools of Chicago. These girls are for the most part those who need to become self-supporting within a very short time or who because of illness or other reasons are behind the average girl of their age in requirement. To these a large amount of active and practical handwork is given.

The school is equipped with a large gymnasium, with shower baths, with attractive art rooms, with sewing rooms, a student's kitchen and dining room for teaching the proper serving of meals, a laundry where home washing and ironing will be scientifically taught, with science laboratories and with a lunch room and a lunch-room kitchen. One of the sewing rooms contains twenty machines run by electric power so that a girl who wishes to do so may fit herself to earn her living in a factory or large dressmaking establishment. The other sewing room is supplied with machines run by foot power and contains cutting and sewing tables.

One of the most interesting places in the school is the lunch room with its adjacent kitchen where a few of the older girls prepare lunch for those who wish to buy. They are assisted by a group of younger girls who are paid for their service from the profits of the lunch room. The lunch room furnishes a wholesome lunch at surprisingly small cost and so far has paid for its own equipment of dishes and silver. The larger and more expensive articles, such as the hot water table, the gas range and the refrigerator were purchased by the Board of Education.

A vocational worker from the School of Civics and Philanthropy has an office hour at the school and advises the girls in their choice of an occupation. When it seems desirable she goes to the homes of the girls to consult with their parents and she is always ready to help a girl find work if, for any reason, it becomes necessary for her to leave school.

The enrollment for the year has been over 160. It has attracted an unusually capable body of students in its regular high school classes and is dealing vigorously with the problem of the fourteen-to-sixteen-year-old girl who finds nothing attractive in the academic work of the upper grades of the elementary school.

—DORA WELLS, Principal.

WORCESTER TRADE SCHOOL FOR GIRLS.

The Girls' Trade School at Worcester, Mass., which was opened last September for day classes, has at present a total enrollment of 87 girls in the following trades: dressmaking, millinery, and electric power machine operating. These

trade classes are now turning out very good commercial work both in made up stock and custom order work. The people of Worcester, always cordial in their support, have shown their interest by giving the school their orders for as large a variety and as great a quantity of work as the pupils with their eight months experience can execute successfully.

The trade work is supplemented by the usual academic instruction, physical education both recreative and corrective, and cookery. The cookery classes prepare and serve the luncheon for the pupils and teachers of the school, and plans are well under way for furnishing luncheons for the pupils and teachers of the Boys' Trade School.

In addition to the regular day classes evening and part-time classes are being organized for next year which will increase the scope of the work quite materially. These classes are intended for girls under seventeen who can give only a part of their time to study, and for girls over seventeen, and women who are employed during the day and who wish to study in the evening classes.

This trade school, like many of its predecessors, began its work in a spacious old mansion, thus giving to the school a desirable home atmosphere and at the same time adequate space for good school shops.

While this is a real trade school and properly emphasizes the features that make for trade efficiency, it seeks to stimulate through instruction in hygiene, sanitation, cookery, serving, etc., a wholesome love for home life and intelligent home service.

—CLEO MURTLAND, Principal.

UNIVERSITY EXTENSION WORK FOR WOMEN.

The household science department of the University of Illinois announced during January two extension courses, one in meals, menus, and service and the other in sewing and drafting. The classes were held at the University from January 29 to March 8, 1912. Each course consisted of three laboratory periods of two and one-half hours each, and two recitation periods of one hour each, in a week. The class work was supplemented by outside reading so that the entire school time of the student was occupied. No entrance requirements were imposed and no university credit was given.

In addition to the six weeks courses the department conducted a "School for Housekeepers," lasting from the 15th to the 26th of January. The school consisted of laboratory work, demonstrations, and lectures. A number of instructors and lecturers, all specialists in the subjects presented, combined in the effort to give in a few days the best thought and advice evolved from their experience in the several subjects. Every phase of household work was discussed under the general headings, the house, foods, clothing, and health, the aim being to consider not only the activities of the home but those things which make for the higher life of the home as well.

That these opportunities are highly appreciated is shown by the attendance. Four states and thirty-six counties were represented. The limited accommodations, owing to heavy regular classes, made it impossible to receive all who registered—but 186 attended the school for housekeepers, and 26 were admitted to the extension course in cooking and 32 in sewing.

THE "CRETE PLAN" OF DOMESTIC SCIENCE INSTRUCTION.

An entirely novel plan of domestic science instruction has been evolved in Nebraska. The plan known as the "Crete Plan," is in successful operation in a number of high schools in that state and consists of instruction by means of volunteer work among the good housekeepers of the communities. The instruction is given to the high school girls at the homes of the housekeepers, thus allowing an opportunity to judge other features of homemaking as well as cooking. The girls take notes on the lessons, then practice at home in making the articles discussed. When the requisite skill has been acquired, the articles are made and brought to an exhibit where they are passed upon by judges. Credit is given toward graduation for successful work.

This plan is a solution of the problem of providing domestic science instruction in such schools as are financially unable to introduce special equipment for the purpose. Those who have tried the plan say that it is valuable because it recognizes the cultural value of domestic housekeepers of the community; it brings high school girls into friendly relation with real homemakers and enables them to note the arrangements of attractive homes; the girls see the most respected and influential ladies engaged in culinary operations; the girls do work in a real home with home atmosphere and home environment; and it honors toil in the home.

The department of public instruction of Nebraska has published a pamphlet which describes the plan.

A GOVERNMENT DOMESTIC SCIENCE SCHOOL IN NORWAY.

According to a recent consular report, the government of Norway is engaged in establishing in Stavanger a school of domestic science, intended to afford a complete course in housekeeping to young girls over sixteen years of age. The report describes the school and its aims as follows:

"A course in housekeeping is now a part of the curriculum in the regular public schools of the city, there being a well furnished modern kitchen and suite of rooms for this purpose in one of the modern public school buildings. This public school course is available only for the girls who have not yet entered the 'middle school,' which is usually reached about the age of 13 or 14 years. The purpose of the new Government school of domestic science is to afford an opportunity for training in housekeeping to those young girls who did not receive such training in their public school course (the domestic science course in the public schools was started only two years ago in its present form). It is especially designed to give a years' training in housekeeping to girls who have been working in factories and have not had adequate training in housekeeping either in school or at home. The course as outlined places special stress upon the economics of housekeeping, including economy in buying as well as in the management of the house.

"Six rooms are now being fitted up for the purposes in the basement of the new Vaaland school building, in the third story of which the public school training in housekeeping is given. The rooms are all light, pleasant, and sanitary, and are well furnished. One room is fitted up as a kitchen with good stoves and modern kitchen equipment; the other five rooms will be used, re-

spectively, for washroom, room for training and demonstration, dining and serving room, hall, and ironing room. In the nine months' course the fall term runs from August 15 to December 15, and the spring term from January 15 to June 15. At the end of each term the pupils will undergo an examination.

"The subjects taught include study of foods, domestic economy, cooking, soteriology, social usages, and temperance. Three teachers will be employed to start with. The city council has appointed five members of the school board of the city as managing directors of the school for three years.

"The school is starting with about 20 pupils. They are required to pay 5 crowns (\$1.34) per month, which is to include both tuition and boarding. Of the initial expenses and the maintenance of the school the Government furnishes three-fourths and the city one-fourth.

"The hours for school work will be 8 a. m. to 2 p. m., and 4 p. m. to 6 p. m. Only pupils will be admitted who have passed their sixteenth year, who have a certificate of good character from the schools or from their employers or guardians, and who present a certificate from a practising physician that they are in good health."

A CLEVELAND EXPERIMENT.

The management of the Cleveland, Ohio, school system is convinced that the girls of the public schools have not received their full share of attention in regard to fitting them for lives of real service.

This year, at the Fowler school, the girls from sixteen surrounding schools are being instructed in infant hygiene, care of the home, cooking, table etiquette and kindred subjects. The Babies' Dispensary has assisted in the work of teaching infant hygiene. A demonstration was given at the school in March which was attended by more than a thousand people. The girls engaged in the actual work in which they had been instructed, and the audience was deeply impressed with the practicability of such teaching. The work at this school was started as a test or experiment and the results have fully established the value of the instruction, which will doubtless be provided thruout the city.

RURAL EDUCATION AT THE ST. LOUIS MEETING.

No subject was given more and better attention at the St. Louis meeting of the Department of Superintendence, February 26th to 29th, than rural education. State Superintendent E. T. Fairchild of Kansas presented a preliminary report of the committee of the National Council, which had been formed to present the rural school situation. In summing up he pointed out that "of the 12,000,000 rural school children, less than twenty-five per cent complete the work of the grades. The teaching force is immature and lacks proper training. The buildings are poor, unsanitary and ill-equipped. The supervision is inadequate. The strong, virile rural school of a generation ago has gone, and in its place is a primary school, weak in numbers and lacking in efficiency.

"In spite of the marvelous development in enrollment, teaching force, excellence of buildings, and equipment in town and city schools, in normal schools, colleges and universities, the rural school remains the most backward of all educational agencies."

In leading the general discussion Dr. David Snedden indicated his sympathy for the rural school by telling the audience that he first went to school at the age of fourteen in a log schoolhouse in the mountains of California, forty miles from any other school. He then presented an analysis of the country school problem that was full of constructive suggestions. He said that at bottom the rural school problem is an economic one. We can have just as good schools in the country as in the city if we will pay for them. We do not, because the money for schools is distributed according to the population.

A large part of the pupils of the rural schools are between six and twelve years of age. The problem for these children is not very difficult of solution if we can get them together. Girls from eighteen to twenty-five years of age are going to be the teachers of these children, and these teachers can be trained in the normal schools in two years.

It is the last two grades of the country school that are causing the trouble. Here we find the great barrier to efficiency. In these grades the teaching problem becomes a difficult one. We cannot teach the big boys successfully in the little schoolhouse with the small children. Dr. Snedden feared that if the girl from the normal school were to try to teach agriculture to the big boys from the farm, she would repeat the experiences that some women have had in teaching woodworking. His solution, then, would be to transport the older boys and girls to consolidated schools where they can be taught by thoroly trained men and women, and keep the small children near their homes in the small school buildings. He would make these schools first class primary schools.

Professor Edward C. Elliott of the University of Wisconsin stated that there is great need of having demonstrated just what is possible in a rural school, and he considered that in such demonstration work is a most appropriate place for federal aid to rural education. Professor E. E. Balcomb of the State Normal and Industrial College at Greensboro, N. C. gave emphasis to the importance of having the rural school teachers trained in the normal schools. Too large a proportion of normal graduates go to the town and city schools.

The same interest in the rural school problems was manifest in several sessions, and notable in the toasts at the banquet of welcome given to Commissioner Philander P. Claxton, recently made U. S. Commissioner of Education. One of the speakers, Superintendent Hamilton of Allegheny Co., Pa., said, "We hail Dr. Claxton as the educational Moses who will lead up from rural school indifference to rural school efficiency." He pointed out that the rural school should "raise, socialize, vitalize rural life."

Dr. Claxton in his gracious reply made it clear that he believes that there are some problems of education that can be better solved by the federal government than by any state or local government. He also made clear his belief in practical education. He said, "I cannot conceive of any education except for service." "A man shall be counted great in proportion as he can render service."

At another session in speaking on the teaching of agriculture in the rural schools before the state and county superintendent's round table, Dr. Claxton said that agriculture cannot be taught with flower-pots in the winter; the teacher must be employed thruout the year. A country school is "a place" in

the country. The schoolhouse has beside it a "teacherage" just as a church has a parsonage. The teacher must live there. He must be a farmer and his wife must be able to sew and cook. The teacher should cultivate his farm better than any other farmer in the community and if he does not do this he should lose his job. With such schools and such teachers, children may receive a sound practical education in the country schools.

AGRICULTURAL EDUCATION IN CALIFORNIA.

Interest in agricultural education in California is being stimulated thru the avenue of school gardening. The University of California, at Berkeley, originated what is known as the "Berkeley garden city," which is a civic organization in miniature, with its officials, its bank, its market, and with gardening as its leading occupation. From this beginning the movement is spreading thruout the state. Similar garden cities have been organized, looking to the department of agricultural education of the University for guidance, suggestions, and ultimate control. By means of contests, and two papers, the *Junior Agriculturist*, and the *Junior Call*, of San Francisco, together with extension work carried on by students of the department, interest is kept alive and active. Over two thousand boys and girls have become a part of the "Californina garden city," the larger organization into which the inital project has grown. This by no means is the only work carried on in the field of agricultural education by the University. The department reaches out to all of the high schools and special schools of agriculture in the state by visitation, correspondence, and conferences, and in the University itself students are prepared for the work of teaching agriculture and of supervising agricultural education. Detailed information in regard to the various activities of the department may be secured from C. A. Stebbins, College of Agriculture, Berkeley, California.



The Cadillac Motor Company in Detroit, Michigan, maintains a vocational school in its factory. The boys are trained to be skilled mechanics with emphasis placed on those lines which affect automobile work. The course lasts three years and corresponds to a mechanical course in any technical school. The boys are paid while in the school, 10 cents an hour the first year, 11 the second year, and 12 the third year. After the school course is finished the boys go into the factory and gain experience in every department, receiving during this period a wage of 15 cents an hour. When this preliminary working experience in the various departments is completed the boys are allowed to choose the department in which they will go to work as full-fledged automobile builders.



Ohio has an association for the advancement of agricultural education which was organized at the State University last summer. The organization was effected in order that the teachers of agriculture in the state could be of assistance to each other. A bureau of information was created, consisting of the professors of agricultural education in the state universities and normal colleges. The membership of the association has grown to nearly 200 in this

short time, and the association has affiliated with the American Association for the Advancement of Agricultural Teaching.



Commercial education is the subject of considerable discussion and attention in New York City at the present time. In March the Chamber of Commerce held a conference on the subject. There seems to be a well-established conviction that the present means of providing commercial education are inadequate and that the Chamber of Commerce should cooperate with the educational forces in establishing and managing some institution, for the purpose of such education, which shall be worthy of the city of New York and which shall meet the demands of the community in all respects. It is probable that an evening high school of commerce will be the type of institution finally agreed upon.

MINNESOTA.

A vocational survey is to be made of Minneapolis, Minnesota, with the purpose of securing information regarding children between fourteen and eighteen years of age who have left school in the last five years to go to work. The survey will be financed and organized by the Minneapolis Teachers' Club. The first step toward the survey was the appointment of a committee, which includes people prominent in state and city affairs. The committee will be assisted by trained investigators. The investigation will cover the home conditions, social environment and school history of the four hundred children who left school in 1907. It will also include an enquiry into the history of each child during his period of employment; and an enquiry as to wages, hours, and conditions in such establishments as employ juvenile labor.

NEW ENGLAND.

Vocational education has developed more rapidly in the New England manufacturing states than in other sections of the country. The annual report of Deputy Commissioner Prosser of Massachusetts gives some interesting comparative statistics. In the year 1907-8 six schools in Massachusetts gave, thru day or evening classes, training in four occupations to about 1,400 persons. During the last school year there were twenty-one schools instructing almost 6,000 people, thru day, part-time, and evening classes, and fitting for more than fifty occupations within more than fifteen distinct industries. A safe estimate of the present school year indicates a registration of over 7,000 pupils in not less than forty state-aided vocational schools. During the five years in which such schools have received state aid the investment in building and equipment has increased from less than \$2,000 to more than \$400,000, while the annual cost for carrying on the work has grown from less than \$5,000 to more than \$180,000 for the year 1910-11.



In the annual report of W. P. Taylor, director of the industrial school for boys, Beverly, Massachusetts, some interesting facts and figures were presented.

The school has a three-years' course. Special attention has been paid to raising the percentage of attendance, with the result of an average attendance of 97.88 per cent for one division and 97.82 per cent for the other division. The school opened with 64 pupils; the first of January there were 67—altho a number had had to drop out on account of illness. Great effort has been made to increase the output of work and to eliminate corrections and waste. As a result the earnings of the boys have been greatly increased, the new boys earning a dollar a week more than the new boys of a year ago and the second year boys earning sixty cents more a week than second year boys last year. The most important step of this year's work was the testing of the third year boys in actual factory conditions. Eight boys were placed in the factory of the United Shoe Machinery Company as students on full time for full pay. The school director cooperated with the foremen of the factory in seeing that the boys were attentive and satisfactory in behavior, and that the work assigned continued and rounded out their school experience. After three months' test the unanimous verdict of the foremen is that the boys have "made good." Other department foremen are asking for boys from the school. Six of the boys have averaged \$13.90 as a weekly wage. Results like these prove the certain value of trade school instruction.



The state superintendent of Louisiana recommends the following equipment for rural schools in the state: a kit of carpenters' tools, apparatus for teaching household practice, a set of gardening tools, a Babcock milk tester, cases for specimens collected in community study, apparatus for science work above seventh grade, a sand table, all available bulletins and publications of state and United States departments, bearing on agriculture, gardening, tool work, household practice, etc., books on agriculture, farm life, and the home, and types of improved machinery loaned for exhibition and demonstration purposes.

A suggestive outline as to what the school can do for the community has also been sent out. The suggestions include testing all kinds of seed for fertility, milk testing, exhibition days for crops, live stock, etc., at the school, furnishing early plants and cuttings from the school hot-bed, and encouraging farmers to bring to school statements concerning farm work, which can there be discussed, and the scientific reasons for conditions discovered.

This is setting a high ideal for the rural schools but one which experience is proving in several localities, an attainable one.



Two vocational schools have been opened in Washington, D. C., since the beginning of the new year. The Wisconsin Avenue Vocational School has a course of study which combines vocational and academic instruction, the vocational subjects being carpentry, cabinet-making, and mechanical drawing. Other vocational subjects will be added from time to time. Frank A. Woodward of the McKinley Manual Training School is principal. The Cardoza Vocational School is part of the system for colored children. It is open to pupils fourteen years of age or over who have completed the fifth grade. Carpentry for boys, and cooking and dressmaking for girls have been arranged. Machine-shop work for the boys will be added soon.

THE STUDY OF AGRICULTURE IN NEW YORK.

Active interest in the study of agriculture and its teaching is growing in New York state. The State Normal School at Cortland has established a course in training teachers in agriculture. Its work will not rival the agricultural colleges. It is intended to prepare teachers to carry on any of the science work including the allied sciences and agriculture as outlined in the state syllabus. An eleven-acre tract of splendid farm land affords exceptional opportunities for experimental work. Several good dairy farms are in the vicinity of the school, and the owners of these farms have assured the school authorities that their herds and dairy equipment will be at the service of the classes in agriculture. In return the school has done much in the way of advising with the farmers concerning the treatment of the soil of certain of their fields, the combating of insect pests and the control of plant diseases. The school aims to make the work mutually helpful.

Syracuse University is about to group certain courses looking toward the necessary preparation of teachers, and is about to add a specialist to give instruction in farm management subjects. He will take charge of the students in agriculture and assist them in arranging well correlated courses.

New York has nineteen agricultural high schools, which are doing very practical work. The boys are expected to visit the farms in the neighborhood of their schools, not only to observe, but to take hold in the actual work, also, whenever the owner will allow them to. Moravia high school has seventy students in agriculture. The class in farm mechanics, lacking the proper facilities for their work, fitted up a room in the basement. They made a concrete floor, opened a window thru the wall, finished the walls, and are busy on the equipment. The Tully high school has an "Agriculture Club," which recently arranged an exhibit illustrating the varieties of fruits and vegetables grown in the vicinity. The students at the Cortland Normal School have had lessons in apple packing and held an exhibit of their work, which showed their knowledge of the different ways of packing.

THE PREPARATION OF TEACHERS.

Buffalo State Normal School has vocational courses for men and women. These courses are so overcrowded that it has been necessary to raise admission requirements by excluding all who are not high school graduates and add to the entrance requirements physics and chemistry. All the male students who are fitting themselves to be teachers of industrial work spend part of their time in the factories of the city while attending school. Much is required to teach vocational education in addition to the pedagogical training that the school is imparting. These students also have opportunity for practice teaching in the school shops of the city and in the better equipped settlement houses. The school also has an evening training school for mechanics who desire to fit themselves as teachers. This class of students numbers 22, and all of them are skilled mechanics who come to the school for the training in teaching. Practically all of the effort formerly put on such abstract subjects as psychology and history of education is now directed toward planning courses of work and equipment, to developing the art of teaching industrial subjects and to the giving of instruction in shop mathematics, electricity, and mechanics which are intimately connected with trade instruction.

The State Normal College at Albany has two courses, one for the training of teachers in manual arts and one for the training of teachers of homemaking.

THE NEWARK INDUSTRIAL SCHOOL FOR BOYS.

The Boys' Industrial School of Newark, New Jersey, which is controlled by the Board of Education, is conducted according to sound principles and with the aim of real industrial efficiency. Stress is laid on doing a few things and doing those few well. It is believed by the management that the boys of this school should do "as clear thinking and as accurate and precise manipulation as is done in any office, drafting-room, or shop in the city, even if they cannot do it with the same speed."

The lessons in the several subjects are printed in loose-leaf form by the printing department of the school. Thus each pupil builds up his textbook as he proceeds with the subject. Fifty per cent. of the school time is devoted to shopwork and the other half to academic subjects including drawing. The daily program is as follows: In the shops during the forenoon are three sections, 2B, 1A, 3B, taking respectively pattern-making and foundry practice, elementary metalwork and printing, each section working from 9.00 to 11.45. Three other sections, 1B, 3A, 2A, at the same time are receiving instruction in drawing, English, and arithmetic (which includes geography and history or science). Each of these classes lasts for fifty-five minutes. In the afternoon 1B, 3A, and 2A take their turn in the shops, 1B having elementary woodworking, 3A electrical construction and advanced metalwork and 2A elementary electrical wiring. Sections 2B, 1A, and 3B have three recitations in drawing, English, and arithmetic.

The school graduated a class of 23 last June. Eighteen of these were placed in shops and drafting-rooms in the city, and their employers have expressed themselves as well pleased with their manner of taking hold of the work assigned. Three members of the class went on into the Manual Training High School, and two moved out of town. A few have changed their positions to others more suited to their tastes and abilities. In following up the graduates, information has been gained showing the average wage of the class of June, 1911, to be \$7.50 a week, which is about \$2 a week more than the average wage of any eighteen untrained boys, six months out of school.

Plans are under way in Newark for a girls' industrial school, which will materialize in the near future.



The Macy Trade School was organized in December, 1910, under the Los Angeles School District, for the purpose of giving elementary vocational training to boys in carpentry and to girls in dressmaking, cooking, and applied design. The work has proved so successful that the division of the school year into two schools, the Boys' Vocational School and the Girls' Vocational School, and enlarged courses of study are now advisable. For next year the girls' school will have courses in the following subjects: sewing, cooking, English, textile design, art, history, geography, music, and arithmetic. The sewing work includes power operating and dressmaking as well as the elementary forms of sewing. Cooking includes a course in lunch-room practice among others. Included in the academic courses are industrial history, industrial geography, and textiles. Millinery and stenography will doubtless be added later. Each course covers five recitations weekly for ten weeks and counts one credit for completion. Forty credits entitle a pupil

to graduation. Harry Rea of the Manual Arts High School will have charge of the boys' school and Robert H. Lane, the present principal, will continue in charge of the girls' school.



The Page bill has received the endorsement of the National Association of Manufacturers thru the president John Kirby Jr. and the committee on industrial education. The committee has sent out letters urging friends of the bill to write to the senators interested directly and to the house committee on agriculture.

Neither Senator Page nor the supporters of the bill are insisting on the exact letter of the bill. But the "spirit and purpose" of the bill, which means federal appropriation for both agricultural and vocational education, are receiving the endorsement of many factions. In addition to the National Association of Manufacturers, which is actively pushing the bill, it has been approved by John M. Stahl, legislative agent of the Farmer's National Congress, and by Samuel Gompers, of the American Federation of Labor.

The bill has been favorably reported from the senate committee on agriculture, and since Senator Smith has ceased pressing the Smith-Lever bill in the senate, supporters of the Page bill are hopeful of the outcome there. Effort should now be concentrated on the house committee on agriculture.

The Smith-Lever bill, referred to, is one which proposes a yearly appropriation of three million dollars for agricultural extension work, and therefore, in a sense, is in opposition to the Page bill.



The Woman's Municipal League of Boston has increased the usefulness of its vocational guidance charts by the addition of lantern slides which illustrate them. These charts were described in the January issue of this magazine. Lectures explaining the charts and illustrated by the slides are given in various parts of the city and have aroused much interest and are proving effective. About four hundred Syrians attended one of these lectures, given by Thomas McCracken, of South End House, in December. The lecture was interpreted to them by a Syrian student of economics at Harvard University.



The State Trade School at Bridgeport, Connecticut, will each year contract for the building of a house in the city in order to afford the students in carpentry practical experience. Regular carpenters will be hired as foremen but it is planned to have the boys do all of the actual work as far as is possible. As only one house a year will be built by the school the local contractors will not suffer any great loss of business so no opposition is anticipated from that direction. This new departure in trade school work will be watched with interest.

REVIEWS

American Education. By Andrew S. Draper, Commissioner of Education of the State of New York. Houghton, Mifflin Company, 8¼ x 5 ¾ in.; pp. 382, price, \$2.00.

This volume by a man of deep and broad experience, who is recognized as one of America's foremost administrative educators, is a valuable discussion of many phases of education. Many points of view are stated, and many opinions are expressed which one feels are the result of slowly-growing convictions and not the expression of passing enthusiasms. No teacher or school patron could fail to gain from reading this book a broader, saner, and more wholesome view of the meaning and purposes of education, and its relation to our national life.

To teachers of vocational education two chapters, entitled "Education for Efficiency" and "The Farm and the School," are of vital importance and should receive due study. Commissioner Draper places the blame for the lack of efficiency on the elementary school. His indictment of this section of our school system is the clearest, most logical, most indisputable, and at the same time the most dignified and restrained that we have yet seen. Not only does he point out the deficiencies but, unlike many critics, he suggests remedies. One of these suggestions is a "new order" of schools, added to the common elementary schools, which shall be either "factory" or "trade" schools, or both, and which shall be made an integral part of the public school system. This gives a mere hint of the interesting deductions set forth in these chapters.

Combined with the interest of the subject matter, the strength, clearness, and fluidity of the author's style make the reading of this book a positive pleasure and one which no teacher can afford to deny himself.

—V. E. WITHEY.

Principles of Rural Economics. By Thomas Nixon Carver, Ph. D., LL. D. Ginn and Company, 5½ x 8; pp. 386; price \$1.30.

The expansion of agricultural departments in our universities and colleges, the increased interest in special agricultural schools, and the introduction of agricultural education into secondary schools, all point to a great awakening in regard to rural problems. To all students of these problems, this book on rural economics will be most welcome as a reference book, as a possible college text, and as a helpful treatise for individual reading. It is written in a simple style, is well arranged, attractively printed, and bears the stamp of authority.

In addition to the college and special school audience which this book will reach, it will make a strong appeal to that group of teachers in secondary and elementary schools who are required to teach agriculture with little or no preparation. That this group is large is due to the rapid development of a new subject which always results in a demand far exceeding the supply of adequately trained teachers. For the really earnest among this group, who are anxious to improve, this is just the book to give them a broad comprehensive

view of the social-economic phases of agriculture, its relation to the history of the race, and its place in world-development.

The general reader, also, will find in the book much enlightenment on topics which are being widely discussed in current literature.

—V. E. WITHEY.

A Glance at Some European and American Vocational Schools. The Consumer's League of Connecticut, Hartford, $5\frac{1}{2} \times 8$ in.; pp. 64; price 50c.

If it be but a "glance," this modest little book is indeed a very penetrating and far-seeing glance. The presentation of the American problem in the opening pages is strikingly clear and sharp-cut, and the view of foreign schools gives underlying motives and hints of adaptability to American conditions which make the information very valuable. German schools have been widely written up, but the work of the Flemish schools, described in this book, is not so well-known. The illustrations are of designs made in these Flemish schools.

The concluding topic, "The American Situation," is very well handled. The recommendations made by the investigating committee to the members of the Consumers' League will prove of interest. They read as follows: "I. That we advocate the introduction into our grammar schools in every town of 20,000 inhabitants or over in Connecticut industrial courses of five hours a week open to all children from the sixth grade up, and as far as practicable in smaller towns also. II. That we advocate the establishment by the state of day trade schools in every town of 20,000 inhabitants or over for children over fourteen years of age who can pass an examination in the reading or writing of English and in Arithmetic thru fractions. III. That these schools be open in the evening to all workmen over sixteen years of age. IV. That special courses from six to ten hours a week be obligatory upon all children from fourteen to eighteen years of age who have left school to go to work, and that they be given in company time with no deduction from their wages."

The Worker and the State. By Arthur D. Dean, S. B. The Century Company, $7\frac{3}{4} \times 5\frac{1}{4}$ in.; pp. 355; price \$1.20 net.

Industrial education is being discussed with increasing fervor thruout the country, and in some instances its opponents have approached frenzy in their denunciations. It is, therefore, a relief to find that the subject can be discussed, as it is in this book, with decided force and power yet without fever or fulmination.

The book is so comprehensive in the discussion of education for industrial workers that only mere hints may be given of the rich content of the subject matter. The opening chapter, on "Past, Present, and Future," points out the close tie between industrial education and the new development of national interest in education. The second chapter, entitled "The Educational Significance of Modern Industry," is wonderfully illuminating. It takes up such topics as differentiation of labor, the automatic machine, and industrial freedom, in a sane, logical, and convincing manner that will do much to clear away the fog of error caused by the rant of short-sighted agitators. The

historical sketch of industry in this chapter will also prove helpful. The subject of "Women in Home and Industry" is treated in a fresh way. The chapter on "Education for Wasted Years" shows that the problem of educating the youth of from fourteen to sixteen years of age has been studied sympathetically and with very practical results. Chapter V. "Trade Schools at Sixteen" presents the subject from the economic and civic viewpoint. The remaining chapters on "Trade Unions and Trade Schools," "Cooperative System of Industrial Training," "Schools in the Factory," "Supplemental Education," and "A Declaration of Principles," will prove equally interesting and helpful.

The crisp, vigorous style in which the book is written holds the reader's attention thruout without fatigue, and despite the extremely practical nature of the subject matter one glimpses in the reading "the vision and the dream" which lead us on in the paths of progress.

Elements of Applied Mathematics. By Herbert E. Cobb, Professor of Mathematics, Lewis Institute, Chicago. Ginn & Co., 5 x 7 in.; pp. 274; price \$1.00.

"This book is the result of four years' experimentation in the endeavor to make the instruction in mathematics of real service in training pupils for their future work. There is at the present time a wide-spread belief among teachers that formal, abstract, and purely theoretical portions of algebra and geometry have been unduly emphasized. Moreover, it has been felt that mathematics is not a series of distinct subjects, each in turn to be studied and dropped without reference to the others or to the mathematical problems that arise in the shops and laboratories."

The author has attempted to closely relate arithmetic, algebra, geometry, and trigonometry to one another and to the shop problems. This has been done by lists of problems based upon preceding work in mathematics and on shop and laboratory work. The pupil secures much of his data by simple experiments in the mathematics class room.

The problems will be found of great value for the purpose for which they were intended. They demand a knowledge of algebraic, geometric, and trigonometric principles, however, and for that reason are "elements" of applied mathematics only as contrasted with junior or senior engineering mathematics. For use in freshman or sophomore engineering classes or in third or fourth year high school they will be found very valuable both in direction and in substance.

—IRA S. GRIFFITH.

Twenty-Fifth Annual Report of the Commissioner of Labor, 1910, Industrial Education. The Government Printing Office, Washington, D. C. 6 x 9¼ in.; pp. 822.

It is essential to growth in any line of social activity that the worker should now and then stop the rush of personal work long enough to get a broad view of the field of effort in the country at large. The broader view has a tendency to sweep away the thought of personal or local aggrandizement and to place in its stead the more worthy aim of the greatest good to the greatest number.

Such a widened view of the subject of industrial education is gained by reading this valuable report by the Commissioner of Labor.

In the letter of transmittal, we are told that the purpose of the study which resulted in the report was not to enter into any theoretical discussion of the subject of industrial education, but rather to bring together the comprehensive data respecting the various systems of industrial education in this country, and to analyze and present the information in such a way as to be of the most use to those interested in furthering the development of this important branch of education.

In preparing the report it was necessary to include mention of departments in schools not strictly industrial since the lines between different types of schools have not as yet been clearly defined. No attempt was made to take a complete census of all the vocational, trade and apprenticeship schools of the country, but information is presented concerning representative schools of each class. The investigation does not cover commercial schools, manual training schools, technical schools or agricultural schools. Schools which are primarily commercial enterprises, maintained for the profit of the proprietors, are not included in the report. The chapter headings will convey an idea of the scope of the report: Philanthropic Industrial Schools, Public Industrial Schools, Apprenticeship Schools, Co-operative Industrial Schools, Evening Industrial Schools, Young Men's Christian Association Schools, Textile Schools, Girls' Industrial Schools, Negro Industrial Schools, Indian Industrial Schools, Correspondence Schools, Teachers' Textbooks, Vocational Guidance, Possibility of Teaching Trades, Demand for Graduates, Disposition of Product of Industrial Schools, Attitude of Employers and Employees, State Commissions on Industrial Education, Legislation Relating to Industrial Education, a Chapter of Tables, and a Bibliography. The limited nature of a review will not allow comment on these chapters but they will be found to be well arranged, so that sub-topics are easily located, readable, clear, concise, and imbued with an element of human sympathy usually lacking in a report of such extent.

RECEIVED.

Bulletin No. 15. National Society for the Promotion of Industrial Education. Proceedings of the Cincinnati Meeting. J. H. Cone, Secretary, 20 West 44th St., New York, N. Y. Contains papers by H. E. Miles, Frank Duffy, James P. Munroe, Herman Schneider, Pliny A. Johnston, J. Howard Renshaw, John L. Sherer, Arthur L. Williston, Charles A. Prosser, Edwin G. Cooley, Carroll G. Pearce, George M. Forbes and others, besides the report of the committee on national legislation by David Snedden.

Laws of Wisconsin Relating to Common Schools. Published under the direction of C. P. Cary, State Superintendent of Schools, Madison, Wisconsin.

Industrial and Agricultural Training. Report of the Commission upon the plans for the extension of these subjects in Wisconsin. C. P. Cary, Chairman, Madison, Wisconsin.

Information Relating to the Establishment and Administration of State-Aided Vocational Schools. Bulletin No. 3. David Snedden, State Commissioner of Education, Boston, Mass. Bulletin No. 1 also gives information concerning State-Aided Vocational Schools.

Agricultural Education. By A. C. Monahan. Reprint from the report of the U. S. Commissioner of Education, 1911. Bureau of Education, Washington, D. C.

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